

Claes Brundenius

**ECONOMIC GROWTH, BASIC NEEDS
AND INCOME DISTRIBUTION
IN REVOLUTIONARY CUBA**

1981

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Claes Brundenius

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TO THE MEMORY OF MANUEL

CUBA



Area: 115 000 km²

Population: 9.7 million (1979)

GNP/capita: 1 410 current US\$ (1979)

Adult literacy rate: 96%

Life expectancy at birth: 72 years

Source: The World Bank (1981)

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FOREWORD

When I visited Cuba for the first time in 1959 the Revolution was still young but I was immediately impressed by the enthusiasm and the optimism about the future that I met everywhere. When I the next time returned, in July 1960, the Revolutionary Government was about to nationalize the US-owned oil refineries and President Eisenhower threatened with reprisals. Just when I arrived, a protest-rally was organized in front of the old Presidential Palace and I can still remember Fidel's hoarse and vibrating voice echoing in the loud-speakers at the Plaza.

I have since then had the privilege to return several times to Cuba during the 1970s, visits during which I have met many colleagues and made many friends. It is first of all to all these friends that I want to express my gratitude because without their help this study would probably have remained in a drawer. Especially, I am grateful to Dr Carlos Rafael Rodríguez, Vice-President of the Council of Ministers and State, and to his assistant Miriam Fernández for their willingness to receive me on various occasions and discuss the progress of my research. I am also much indebted to all the people at the State Committee on Statistics for their advice and readiness to share statistical information with me and especially I am addressing myself to Dr Fidel Vascos, President of the CEE; Ernesto Díaz, José-Antonio López Pereda and Carlos Estrada. I am also indebted to Oscar Pino Santos, Director of the Institute for the Study of the World Economy in Havana for helpful comments on my study and to Isis García for helping me with the household survey in Havana. My thanks also go to the Cuban

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I also want to express my sincere thanks to Yael Tågerud and Ulla Kinnberg for accepting the burden to transform my illegible manuscripts into publishable pages, to Agnetta Kretz for helping me with the graphical presentation, and to Lesley Palmer for putting my English into better shape.

Finally, I am obliged to my family for having been able to stand an unbearable husband/father during some critical months in the autumn of 1981.

Latin America and Latin Americans have meant a lot to me and nobody could better symbolize the warmth I feel, when I think about that continent and its people, than Manuel Cabieses, my old Peruvian friend. I was just about finishing this study when I learned about his sudden and tragic death. I remember the last time I took farewell of him - at the Revolutionary Square in Havana, 1st of May, 1981. It is to the memory of Manuel that I want to dedicate this study.

Lund, November 1981

INTRODUCTION

Men make their own history,
but they do not make it just
as they please. They do not
make it under circumstances
chosen by themselves, but
under circumstances direct-
ly encountered, given and
transmitted from the past.

Karl Marx
(The Eighteenth Brumaire
of Louis Bonaparte)

The most difficult task was
not the overthrow of Batista
and the taking of revolutionary
power... The most difficult
task is the one we are engaged
in today: the building of a new
country on the basis of an un-
derdeveloped country, the cre-
ation of a new consciousness,
a new man.

Fidel Castro, addressing a
rally on 26 July, 1967

Latin America is a continent of contrasts in practi-
cally every sense of the word, geographically, climati-
cally, economically and politically. It is a rich con-
tinent endowed with abundant natural resources. It is
rich in minerals and other raw materials and these as-
sets have produced considerable wealth in the past, but
too often only for minorities at home and abroad, with
little of the wealth trickling down to the poor masses.¹⁾
In this respect Latin America is, of course, no excep-
tion in the Third World. On the contrary it seems that
this has been the general rule in the past.

During the 1960s - the First United Nations Develop-
ment Decade - the international debate on the causes of
and the remedies for underdevelopment was imbued with a
general spirit of optimism. The rate of growth of many
Third World countries, and in particular of several coun-
tries in Latin America, had advanced at an accelerating
rate after the Second World War. Studies by Kuznets and
others showed that the early stages of growth are accom-
panied by growing inequality (Kuznets' famous U-curve)
but in the longer run growing income would tend to be
accompanied by narrowing income gaps²⁾.

During the first half of the 1970s - the Second Development Decade - many scholars, however, began to have second thoughts about growth and inequality in the developing countries³⁾. Looking at several country experiences it was clear that there were no automatic trickling down effects to the poor as a result of high rates of economic growth. Even in Brazil, which often was referred to as an example, the Government in its Second Development Plan (1975-1979) explicitly recognized that the poor had not benefitted from the "economic miracle" during the end of the 1960s and the beginning of the 1970s, and declared that,

"the Government has rejected the position of waiting until the economic growth by itself solves the problem of income distribution, or the theory of 'waiting for the cake to grow bigger'. It is necessary, while maintaining an accelerated rate of growth, to undertake redistributive policies 'while the cake is growing'. The truth is that, on the one hand, growth may not solve the problem of adequate distribution of income, if left to the mere evolution of market factors. And on the other hand the growth solution, if left to itself, may take far longer than social conscience will permit (underlining mine) in terms of the need to improve rapidly the level of welfare of wide sectors of the population"⁴⁾.

This change in development thinking in the ruling circles of Brazil was, even if it turned out to be just paying lip-service vice, no doubt inspired by the many conferences and seminars held under the auspices of the United Nations in those years. There was a growing concern about redistribution of income and assets and the need of implementing development strategies that, as a first priority, would satisfy the basic needs of the large majorities. The International Labour Organization arranged a number of employment missions to several developing countries, which focused on the question of how to create more jobs. The ILO employment missions discovered what Gunnar Myrdal had already described in Asian Drama, namely that "the real problem is

that in order to be unemployed one has to be fairly well off; in order to survive there must be some income from another source"⁵⁾. At a famous symposium on "Patterns of Resource Use, Environment and Development Strategies", organized by UNCTAD in Cocoyoc, Mexico in 1974, the "purpose of development" was defined in these terms,

"Our first concern is to redefine the whole purpose of development. This should not be to develop things but to develop man. Human beings have basic needs: food, shelter, clothing, health, education. Any process of growth that does not lead to their fulfillment - or, even worse, disrupts them - is a travesty of the idea of development. We are still in a stage where the most important concern of development is the level of satisfaction of basic needs for the poorest sections in each society which can be as high as 40 percent of the population. The primary purpose of economic growth should be to ensure the improvement of conditions for these groups. A growth process that benefits only the wealthiest minority and maintains or even increases the disparities between and within countries is not development. It is exploitation. And the time for starting the type of true economic growth that leads to better distribution and to the satisfaction of the basic needs for all is today. We believe that thirty years of experience with the hope that rapid economic growth benefitting the few will 'trickle down' to the mass of the people has proved to be illusory. We therefore reject the idea of 'growth first, justice in the distribution of benefits later'"⁶⁾.

During the second half of the 1970s there was a steadily growing interest in the formulation of strategies that would stress income redistribution and satisfaction of basic needs but without sacrificing growth. Redistribution with Growth, published by the World Bank and the Sussex Institute of Development Studies, focused on the question of how growth affects distribution and vice versa. It was clearly seen by most contributors to this volume that

growth is a prerequisite for the eradication of poverty and for redistribution but it was also becoming evident that economic growth in many developing countries reinforced existing inequalities.

In the wake of the debate that followed after the publication of the World Bank - Sussex report there were a series of studies of countries that - at least according to preliminary findings - successfully carried through a growth cum equity strategy. Examples of such countries were the Republic of Korea and Taiwan⁷⁾. In this context there has also been a renewed interest in the experiences socialist countries in the Third World⁸⁾ and it is within this framework that this study has been written.

Cuba is a country that already in the 1960s had become a symbol for an alternative development model - at least to the Latin American left. In the 1970s the Cuban experience with respect to the eradication of unemployment and mass poverty, its stress on redistribution and basic needs satisfaction again drew the attention - but this time not only of the Latin American left but also of international agencies such as the United Nations⁹⁾.

This study on the Cuban experience after the 1959 Revolution is divided into five chapters: (1) a historical review of economic growth in Cuba since the beginning of the century until the fall of Batista, (2) a discussion on problems of measuring growth in Revolutionary Cuba, (3) evaluation of the Cuban economic growth record after 1959 (4) and attempt to measure the Cuban performance with respect to basic needs and finally, (5) a presentation of various estimates of income distribution in Cuba, both before the Revolution and at some points during the last

two decades. The study is accompanied by a lengthy appendix, with supporting statistical tables.

NOTES

1. For a discussion on the developing debate in Latin America after the Second World War and an evaluation of various country experiences, see Brundenius - Lundahl /eds/ (1982)
2. See Streeten's article in op.cit.
3. Idem.
4. Second National Developing Plan of Brazil, quoted in Brundenius-Lundahl (1982), p. 7
5. Streeten (1982), p. 17; Myrdal (1968), chapter 21 (vol III) and ILO (1977), pp. 16-17
6. The Cocoyoc Declaration, UNCTAD Document. 74-10536. Among the prominent persons signing this declaration were Barbara Ward, Wassily Leontieff, Enrique Iglesias, Johan Galtung, Maurice Strong, Samir Amin, Mahbub ul-Haq, Juan Somavia, Ignacy Sachs and Shigeto Tsuru.
7. See, for instance, Adelman and Robinson (1978) and Fei, Ranis & Kuo (1980)
8. Morawetz (1980)
9. See, for instance, ECLA (1978)

I. ECONOMIC GROWTH IN CUBA IN RETROSPECT

I.1 Growth and Stagnation in Prerevolutionary Cuba

As measured by real income per capita Cuba could not be considered to have been a poor country on the eve of the 1959 revolution. It has been calculated that in the mid 50s, the Cuban GNP per capita was 361 current US dollars, ranking fourth in Latin America, after Venezuela (762), Uruguay (569), and Argentina (374).¹⁾ Harry Oshima argues that the Cuban GDP per capita was no less than 430 dollars in 1953 (basing his estimates on the Census in that year), or just about the same as that of Puerto Rico and one fourth of that of the United States.²⁾

And yet there is a "mystery surrounding the performance of the old Cuban economy", says James O'Connor. Thus, while "total stock of capital thus grew at a slow, although unstable and unspectacular rate, real national income stagnated during most of the decades leading up to the revolution".³⁾ The reasons for this apparent contradiction were twofold. In the first place Cuba's investment booms were, at least until the 1940s, highly correlated with export activities (sugar, tobacco and nickel) which invariably had a temporary character. Secondly, and the main reason according to O'Connor, was the under utilization and misuse of investments in industries where they were in fact employed. As evidence of the secular stagnation of the Cuban economy, O'Connor claims that real income per capita averaged 201 dollars (in 1926 prices) during 1903-1906, increased slightly to 216 dollars in 1945-1948, and then fell to around 200 dollars in 1956-1958.⁴⁾

O'Connor's figures are based on Julian Alienes' real income estimates for the period 1903-1948.⁵⁾, updated to 1956-

1958 into 1926 pesos. The Alienes estimates were based on four statistical indicators: (1) public revenues; (2) bank clearings; (3) bank deposits; and (4) value of exports. Alienes then related these estimates to independent estimates of the 1938 national income, based on sales and tax data. Assuming that the relation between the indicators and the national income in 1938 could be considered as fairly typical, he estimated long term series and then by deflating the national income figures he arrived at real income estimates for the period 1903-1948.

In deflating for price changes, Alienes used an index of US wholesale prices which might sound adventurous but he apparently opted for this solution in the absence of an available index series on wholesale prices in Cuba for the period in question. Furthermore, a report on the Cuban economy by the International Bank for Reconstruction and Development (IBRD) in 1951 which reproduced the Alienes estimates, found Alienes' estimates to be legitimate, considering the fairly good agreement between other price movements in the two countries (such as the cost of food), with the important exception for the two war periods.⁶⁾ It can be estimated that the cost of living in Cuba (as measured by the cost of food) increased by 114 percent in the period 1913-1918 as compared with an increase in US wholesale prices in the same period of 82 percent, and in the period 1939-1945 the differences between the Cuban cost of living increase and US wholesale prices increase was even more accentuated, or 107 percent in Cuba as compared with 37 percent in the US.⁷⁾

Alienes' estimates of Cuban national income 1903-1939 are reproduced in Appendix Table 1 but for the above reasons, I have also made an alternative estimate of real national income, deflating the nominal values with the cost of food index instead of US wholesale prices. The comparison shows that

there is, indeed, a rather close agreement between the estimates of real national income in the period up to World War I, but then there are important differences. The new estimate would suggest that the Cuban real national income should be adjusted slightly upwards for the 1920s and especially at the end of the 1930s if deflated by cost of food. The general trend is the same, however, implying a stagnation, or even a decrease in per capita income in the 1920s and 1930s. (It should be pointed out that although the estimates are given in Cuban pesos they are more or less equivalent to US dollars, in particular after 1915 when a new monetary system, identical with the dollar, was introduced).⁸⁾

The national income estimates in Appendix Table 1 should, however, be interpreted cautiously. There are no reliable income statistics before 1950 and the rather violent annual changes in real per capita income from time to time suggest that the statistical base in Alienes' estimates is rather shaky. But even if the nominal income estimates are correct, the question remains which deflator to use. Deflating by the cost of food index does not necessarily reflect the actual levels of personal consumption. Other sources, however, do suggest that per capita consumption of many goods was the same, or even lower, in the late 1940s compared with the late 1920s. And not only personal consumption. As shown in Table I.1, there was an even stronger decline in the apparent consumption of intermediate products such as electrical energy, iron and cement. All these figures tend to support the claim that there were serious stagnationary tendencies in the Cuban economy after 1925.

Table I.1 Per capita production of raw sugar and apparent per capita consumption of certain consumer and intermediate goods, 1905/1909, 1925/1929 and 1945/1949

	ANNUAL 1905-1909	AVERAGE FOR 1925-1929	PERIOD 1945-1949
<u>Production</u>			
Raw sugar (kg)	634	1 362	915
<u>Apparent consumption</u>			
<u>Final products:</u>			
Rice (kg)	50	58	47
Wheat flour (kg)	36	31	29
Potatoes (kg)	na	29*	20
Coffee (kg)	na	8	7
Beans (kg)	29	4	3
Beer (litre)	na	13	16
Cotton cloth (kg)	3.6	2.4	1.8
Passenger transport (passenger-kilometers)	88	145	122
<u>Intermediate products:</u>			
Iron (kg)	24	23	18
Cement (kg)	30	85	59
Freight-transport (ton-kilometers)	0.15	0.36	0.24

* = imports only; na= not available

Source: El Desarrollo Económico de Cuba (ECLA E/CN.12/218, 1951), quoted in Seers (1964), p. 14.
Productions of Raw Sugar: Appendix Table 2.

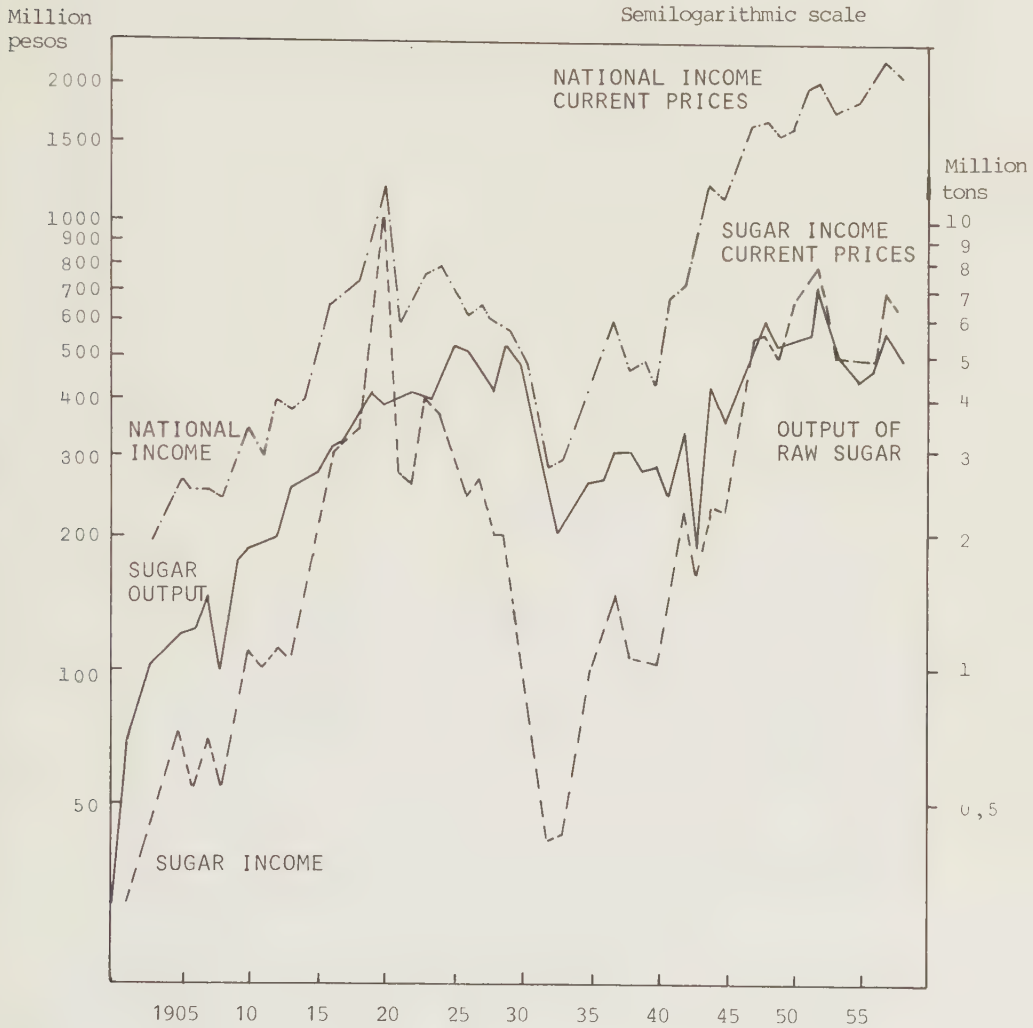
I.2 1900-1929: The Sugar Economy

As Figure I.1 and Appendix Table 2 show, there was a real boom in the Cuban economy during the first quarter of this century. Output of raw sugar increased from 636 000 metric tons in 1901 to 5.3 million tons in 1925 and real national income doubled in the same period. But due to a very rapid growth of population, per capita income was in the middle of the 1920s just about the same as at the beginning of the century, or about 200 dollars in 1926 prices.

There were two important features that dominated the Cuban scenario in this period. Sugar cultivation expanded with the growth of the latifundios (big estates) and at the same time the whole economy became penetrated and dominated by US capital.⁹⁾ The conditions imposed upon Cuba by the United States after the War of Independence, (1895-1898) - a war that was ironically fought against Spain and not the United States - had encouraged both phenomena. The Platt Amendment of 1901 gave the United States the right to intervene in Cuba for various reasons, "including the maintenance of a government adequate for the protection of life, property, and individual liberty"¹⁰⁾, and the so-called Treaty of Reciprocity reduced the duty paid on Cuban raw sugar on the US market(while it increased the duty on refined sugar).¹¹⁾

United States dominance of the Cuban economy had actually begun long before independence¹²⁾, and the interests of US capital were consolidated during the US military occupation of the island which lasted - with few interruptions - until 1908. Up to that point, the colonos - an important group of small cane growers - had existed as an independent class.¹³⁾ But in the short span of two decades the Cuban economic structure changed drastically. Although sugar had already by the turn of the century become the main source of income leaving

Figure I.1 National Income, Sugar Income and Sugar
Output, 1900-58



Source: Appendix Tables 1, 2 and 4

other resources behind, such as cattle, tobacco and coffee, the increasing sugar prices on the world market (see Figure 1.2) caused the rapid spread of sugar cane plantations all over the island.¹⁴⁾ By the end of the war, the Cuban share of world sugar production (including beet sugar) had increased to about 22 percent compared to some 5 percent at the beginning of the century (see Appendix Table 2).

Apart from traditional strong Spanish interests in Cuba, particularly up to the War of Independence, there were also important British investments in the 19th century. British interests included the famous El Cobre mine one of the world's principal sources of copper during the first half of the last century, the Henry Clay cigar manufacturing combine, and, after 1899, the Havana Railways.¹⁵⁾

During the first decade of this century the growth of US investments, in quite a few cases replacing British, was impressive. This period witnessed investments by the United Fruit Co., the American Tobacco Co., and the National City Bank of New York. It saw the formation of the Cuba-American Sugar Co., the completion of the Cuba Railroad and the establishment of the Cuban Telephone Co.¹⁶⁾ While around 1900 US capital in Cuba had totalled some 100 million dollars, of which 45 million dollars in tobacco and only some 25 million dollars in sugar¹⁷⁾, the total of US investments had by 1911 doubled to 205 million dollars, most of which were invested in sugar.¹⁸⁾

Between 1911 and 1927 US sugar investments increased from 65 million dollars to 600 million dollars.¹⁹⁾ Prior to the War, mill ownership had been predominantly Cuban and Spanish and US owned centrales accounted for merely 15 percent of sugar output in 1906.²⁰⁾ In 1925 this share had increased to no less than 35 percent and by the end of the 20s about

two thirds of the sugar production was under US corporate control. This share fell to 55 percent in 1939, 47 percent in 1950 and just over 40 percent in the years before the revolution.²¹⁾

The expansion of sugar production had very serious effects on the cultivation of other crops, especially coffee, since large land areas were converted into sugar plantations.²²⁾ But sugar plantations did not only use other crop land but also large forest areas again began to disappear in Cuba, just as they had at the end of the eighteenth century.²³⁾

The year 1920 marked the peak of this period. In that year the price of sugar sky-rocketed on the world market and brought the sugar companies in Cuba more than one billion dollars in revenues, or more than had all the crops between 1900 and 1913 (see Appendix Table 2). At the beginning of the zafra the world price was already over 9 US cents per pound, well above any previous price recorded, and the prices continued rising until they reached a new record of 22.5 cents in May.²⁴⁾ This so-called "Dance of the Millions" created a sugar mania on the island. People rushed to borrow money to invest in planting still more sugar and a wave of speculation and inflation swept the country. But prices soon went down to more normal levels and many speculators' euphoria came to an end. The "Dance of the Millions" produced a devastating economic crisis which affected every segment of the population. The banking system had totally collapsed and US interests came to control not only more of the sugar production but also of the credit institutions.²⁵⁾ Small planters were relegated to the tobacco growing areas or to poorer lands on the lower slopes of the mountains, while large sectors of the rural population, especially the colonos, were proletarianized, working as braceros on the plantations. The shortage of

cheap labour during the zafra, a result of the drastic decline in population during the War of Independence, gave rise to a flow of immigrant workers from the neighbouring islands.

It has been estimated that immigration contributed some 700 000 to the Cuban population between 1899 and 1931, representing more than 30 percent of the total population increase in this period.²⁶⁾ 59 percent of the immigrants came from Spain and 25 percent from the Antilles, especially Haiti and Jamaica.²⁷⁾ The immigrant workers often lived in miserable conditions.²⁸⁾

"During the first quarter of the century the very definition of economic growth was the expansion of cane cultivation and sugar manufacture", says O'Connor.²⁹⁾ But the sugar companies no doubt built up an excess capacity during the War that did not correspond to the harsh reality in the 20s, with beet production in Europe rapidly increasing to pre-war levels.³⁰⁾ But in spite of falling sugar prices, the big centrales continued expanding production which reached a level of 5.2 million tons in 1929 (see Figures I.1 & I.2). However, after 30 years of almost continuous expansion of sugar, the country was - except for the centrales - as industrially underdeveloped as at the beginning of the century.³¹⁾ In 1925 sugar processing accounted for about 84 percent of total manufacturing output, and the tobacco industry for some 5 percent.³²⁾ Total non-sugar manufacturing amounted to only 56 million pesos and the sector employed only some 26 000 people, that is less than 3 percent out of an estimated labour force of 1.1 million.³³⁾

One of the main reasons for the retarded industrialization lay in the narrow domestic market for consumer goods. A small class of sugar farmers, mill owners, and local and

foreign businessmen disposed of the overwhelming share of the purchasing power, often used for imported consumer goods, and repatriated profits further diminished the local market.³⁴⁾ In the latter half of the 1920s there was a belated attempt to diversify the economy through tariff protection. The attempt was in vain, however. The Great Crash on Wall Street was lurking around the corner with catastrophic consequences for the Cuban economy because of its complete lack of defence mechanisms.³⁵⁾

I.3 1930-1958: Depression and Recovery

The protectionist measures adopted by the US Government in 1930 (the Hawley-Smoot Tariff Act) sent prices of Cuban sugar plummeting downwards to a low of 0.93 cents per pound (see Figure I.2). Sugar income was reduced to levels achieved at the beginning of the century and real income per capita was in 1932 perhaps only half of the pre-war level (see Appendix Table 1). Unemployment burgeoned and living conditions in general deteriorated.³⁶⁾ Polarization and class antagonism led to the revolutionary struggles of 1933 which culminated with the overthrow of the Machado dictatorship but the revolutionary government was shortlived and was soon replaced by one more docile to US interests.³⁷⁾

The new Roosevelt Government in the United States abrogated the humiliating Platt Amendment in the spirit of the "Good Neighbour Policy", although keeping the Guantánamo base. In spite of this apparently new US attitude towards Cuba the island's economy became even more linked to the US economy than before. Cuba was assigned a sugar quota of 28 percent on the US market under the Costigan-Jones Act of 1932, whereby a maximum of 22 percent of the total quota was permitted to enter as refined sugar, a ratio

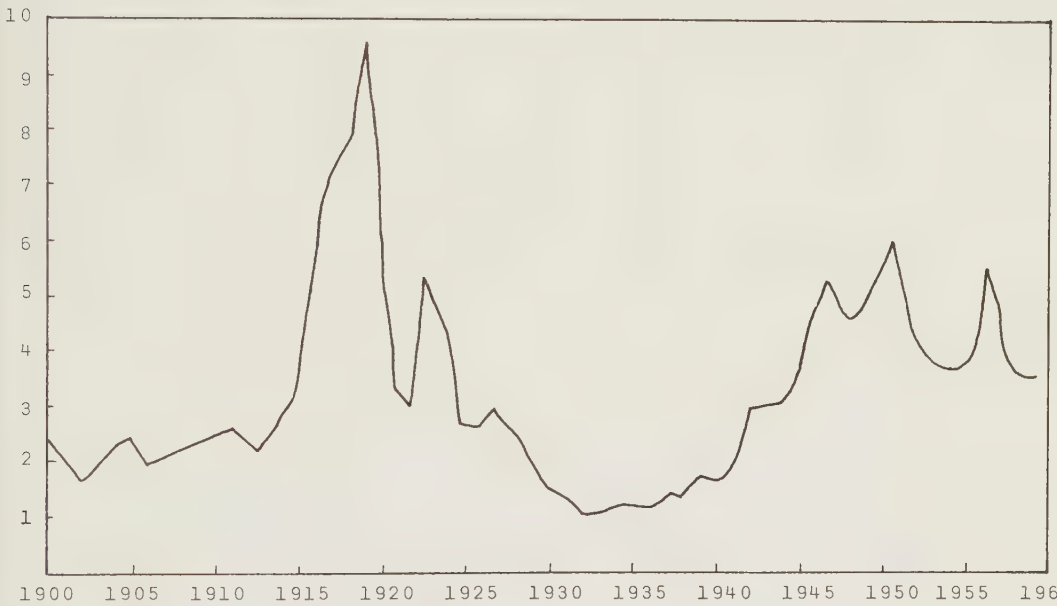
that remained roughly the same until 1960, when Cuba was deprived of sales to the United States altogether. The quota of 28 percent was substantially lower than the Cuban shares in the past. But on the other hand Cuban sugar was then, in contrast with the past, sold at US market prices which were usually above the world market price and were also more stable, at the same time a number of US products were given preferential treatment on the Cuban market.³⁸⁾

In the 1930s there was a trend of disinvestment in sugar and the bookvalue of US investments in sugar stagnated between 1936 and 1958 (see Table I.2). As a matter of fact there was only one sugar mill built in Cuba after 1926.³⁹⁾ However, the decline in sugar investment between 1929 and 1936 was, according to US Department of Commerce, less the result of disinvestment than of financial readjustments resulting from the 1929 Crash which heavily affected the value of almost all US holdings in Cuba.⁴⁰⁾

In 1929 US investments in Cuba had ranked first in Latin America, accounting for 26.5 percent of all US direct investments in that area.⁴¹⁾ Almost two thirds of the total invested in Cuba up to that point were placed in sugar mills or other agricultural assets.⁴²⁾ By the outbreak of the war this share had fallen to 43 percent and on the eve of the 1959 revolution to 26.5 percent. Some of the centrales were sold to Cuban hacendados while others were simply dismantled.⁴³⁾ By 1952 there were only 161 sugar mills left in Cuba as compared with 184 in 1926.⁴⁴⁾

Although US interests had been concentrated in sugar production there had been an early interest also in the mineral deposits of the island. After the closing of the El Cobre mine in 1918 (Cuba had been the third largest copper producer in the world in the early 19th century), the major

Figure I.2 World Sugar Prices, 1900-1958 (US cents per pound)



Source: Thomas (1971), p. 1565

Table I.2 United States Direct Investments in Cuba, 1929-1958
(million dollars)

	1929	1936	1940	1946	1950	1953	1958
Agriculture*	575	265	241	227	263	265	265
Petroleum	9	6	10	15	20	24	90
Mining	-**	-**	-**	15	15	70	180
Manufacturing	45	27	-	40	54	58	80
Public Utilities	215	315	233	251	271	297	344
Commerce	15	15	-	12	21	24	35
Others	60	38	76	8	13	18	7
Total	919	666	560	568	657	756	1 001

* = includes sugar mills; ** = included in others

Sources: Acosta (1973) p. 60 and US Department of Commerce (1956) p. 10.

producer had been the Matahambre ("Hungerkiller") mine, discovered in 1912 and developed by Cuban business groups. In 1921, however, the operations were taken over by the American Metals Company which maintained operations until 1943.⁴⁵⁾ During the War the need for secure supplies of strategic nickel led to the decision by the Roosevelt Government in 1942 to develop the Lovisa Bay deposits in Cuba.⁴⁶⁾ The nickeliferous iron ores of Cuba are considered to be among the largest nickel reserves in the world although the development of the process to recover nickel was difficult; it was successfully developed shortly before the operations started in Nicaragua.⁴⁷⁾

The Nicaragua plant was operated on a fee basis for the US Government between 1943 and 1947 when it was closed down. In 1951, as a result of the Korean War, the plant was reopened and a few years later some additional 64

million dollars were invested in developing the nearby Moa Bay deposits, a project based on an acid leaching process whereby cobalt is separated and received as a by-product.⁴⁸⁾ The refining process was to be performed by Freeport Nickel in the United States. Ironically, the Moa Bay plant started operations only in 1959. The plant had been operating only for a short time when the whole Moa Bay operations were expropriated by the Revolutionary Government.⁴⁹⁾

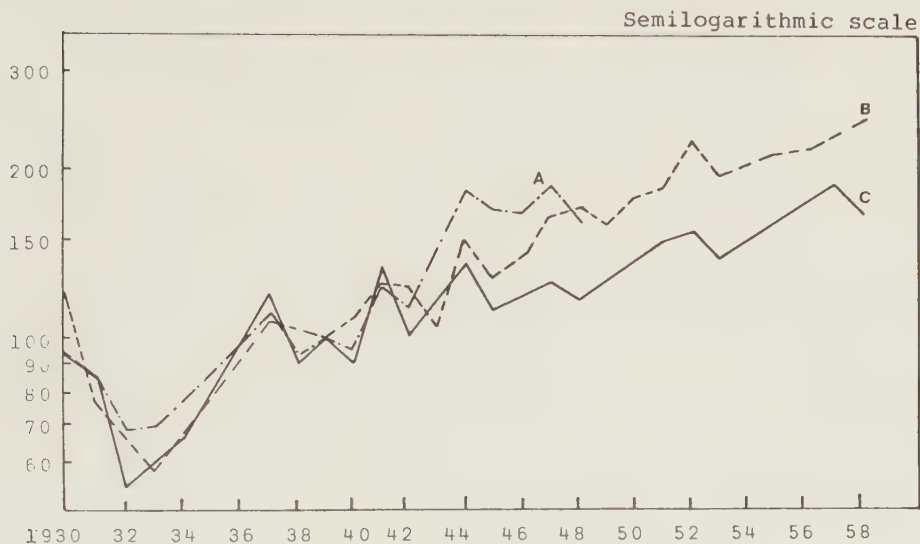
After World War II there was also a substantial increase in US investments in the non-sugar manufacturing sector (see Table I.2). It could be estimated that US subsidiaries were responsible for about 20 percent of total manufacturing sales in 1957 although with large variations between sectors, ranging from 90-100 percent in sectors such as rubber and chemicals (paper, pharmaceuticals, detergents and cosmetics) to about 10 percent in sectors like food and beverages, textiles and leather.⁵⁰⁾

Judging from the total loss claimed in 1970 by US individuals and companies active in Cuba before the Revolution, US capital was omnipresent in Cuba at the end of the 1950s.⁵¹⁾ Even if the total claim of 3.3 billion dollars is exaggerated (as a matter of fact, it is more than three times the official book value of US investments in Cuba in 1958) it provides overwhelming evidence of US penetration of practically every corner of the island. Of the total, 689 million dollars (20 percent) were claimed by sugar companies, 443 million (13 percent) by public utilities and communications companies (primarily the Cuban Electric Co.), 348 million (11 percent) by banks and financial institutions, 345 million (10 percent) by mining companies, 248 million (8 percent) by 42 manufacturing companies, and 186 million (6 percent) by petroleum companies.⁵²⁾

The Cuban economy had, according to Alienes, recovered by the second half of the 1930s, after having reached a trough around 1932 or 1933. But if there seems to be little doubt about the economic trends during the first quarter of the century there are divergent views on what happened in the second quarter of the century. There are four independent estimates for the whole, or fragments, of this period as shown in Appendix Table 3 and Figure I.3. Alienes' estimates of real national income in Cuba also embrace the period 1930-1948. His war period estimates (1939-1945) have, as mentioned, been criticized by the IBRD mission and are probably exaggerated for the reasons mentioned earlier (p.7). Jorge Pérez-López has constructed an index of industrial output in Cuba between 1930 and 1958, covering mining, manufacturing (both sugar and non sugar) and electricity and gas.⁵³⁾ There is reasonably good correspondence between the Alienes' and Pérez-López indices during the 1930s although the depression is deeper and the trough comes one year later in the latter estimate. Both indices indicate that the economy had more or less recovered by the outbreak of World War II.

But what happened during the war is an enigma because here the estimates vary considerably. The IBRD Mission has revised the Alienes estimates for 1939-1948 (although refraining from making any estimates at all for the war years) by deflating the monetary national income with the official cost of living (food) index (instead of the US wholesale price index used by Alienes) and the difference is striking.⁵⁴⁾ According to Alienes, real national income would in 1945 be no less than 71 percent above the pre-war level while the IBRD estimate indicates that the increase was merely 21 percent. Another, more recent, estimate by Jorge Domínguez suggests that the real income level was the same in 1945 as in 1939 (although with violent ups and downs in between).⁵⁵⁾

Table I.3 Growth Estimates, 1930-1958 (1939=100)



- A. Alienes' estimate of real national income
- B. Dominguez' estimate of real national income
- C. New estimate of real national income

Source: Appendix Table 3

I.4 A Permanent Crisis?

Many authors have claimed that the Cuban economy was heading for a serious crisis, in spite of relatively rapid growth after the war. As a matter of fact, some even think that there was a permanent crisis and that the levels of productions, even in the non-sugar manufacturing sector, were doomed to stagnate.⁵⁶⁾ The figures in Table I.3 also tend to support the claim that there were serious stagnationary tendencies in the Cuban economy, at least after 1952 (when a record 7.2 million tons of sugar were harvested). Real National Income increased at the rather moderate rate of 3.4 percent, or 1.4 percent per annum (that is, moderate in relation to other countries in Latin America at the time). Mesa-Lago has estimated that per capita rate of growth was as slow as 1 percent during 1950-1958.⁵⁷⁾ It is true that non-sugar manufacturing expanded through

Table I.3 Growth indicators of the Cuban economy, 1946-1958

	Indices for Selected Years in period			Growth Rate Trend*	
				1946-1952	1952-1958
	1946	1952	1958		
Real National Income Per Capita	100	130	138	4.5	3.4
	100	112	105	2.4	1.4
Total Material Production Per Capita	100	146	152	5.2	1.7
	100	122	119	3.1	-0.3
Sugar Cane Agriculture Per Capita	100	188	144	6.3	-2.4
	100	158	113	4.2	-4.4
Non-Sugar Agriculture Per Capita	100	95	111	1.5	2.8
	100	79	87	-0.6	0.8
Non-Sugar Manufacturing Per Capita	100	138	185	5.9	5.4
	100	122	145	3.8	3.4
Construction Per Capita	100	135	176	7.2	4.1
	100	119	138	5.1	2.1
Real Non-Agricultural Wages	100	167	162	7.3	1.2
Sugar Workers' Real Wages (United Fruit Co.)	100	125	120	3.4	-0.3

*) Log-trend, that is $\log(y) = \log(a) + b^t$, where **a** is a constant and **b** the growth rate. The growth rate is based on all the years in the period 1946-1958, and not only the years shown here. This explains the apparent contradiction between the indices and the trend rates (for instance, in the case of Real National Income).

Sources: Real National Income: Appendix Table 4

Total Material Production (and Components): Appendix Table 5

Real Non-Agricultural Wages: Domínguez (1978), p. 74.

Sugar Workers' Real Wages: Calculated from Zanetti & García (1976), pp. 441-442.

import-substitution at a sustained rate of more than five percent after 1946 but if all productive activities are considered (that is, agriculture, industry and construction = total material production⁵⁸⁾), there is a clear slowdown after 1952 with a stagnating or even negative per capita trend.

The import substitution which took place after the war was a slow process, however, considering the low initial levels of output. It has been estimated that, as late as in 1957, 45 percent of the capital invested in Cuban industry was accounted for by sugar plants and 20 percent by mining activities.⁵⁹⁾ Only 35 percent were invested in the remaining industrial sectors, of which a tiny 0.2 percent in the machinery industry, and many of the industries, such as the textiles and chemical industries, depended heavily on imported raw materials.⁶⁰⁾

But the structural problems facing Pre-revolutionary Cuba were not limited to slow growth and the low level of industrialization. As additional problems Mesa-Lago mentions the excessive dependence on sugar, high levels of unemployment and underemployment and wide differences in standard of living between social classes, and especially between urban and rural areas.⁶¹⁾

The sugar industry was old and its machinery in many cases completely obsolete. Most of the centrales had been built during last century.⁶²⁾ In order to combat costs, the length of the zafra was gradually reduced from about 300 days at the beginning of the century to an average of 210 days in the 1920s, to 104 days in the 1930s and to 95 days in the Postwar period. This means that there was a continuous extension of the tiempo muerto (dead season), leading to increasing levels of

seasonal unemployment. Mesa-Lago has estimated that 16.4 percent of the labour force was openly unemployed, and 13.8 percent was underemployed (meaning either working less than 30 hours per work or working free) in 1956-1957.⁶³⁾ Of those employed, from 20 percent to 25 percent worked in the sugar sector, but due to the seasonal character of the zafra these people had stable work for only three to four months of the year. Statistics from 1956-1957 show that open unemployment increased from 200 000 during the peak of the zafra to some 457 000 during the months of lowest activity.⁶⁴⁾ Although strict comparisons are not possible, statistics on unemployment calculated in 1943, 1953 and 1956-1957, suggest that the situation was becoming increasingly worse.⁶⁵⁾

Cuba in the 1950s was also characterized by large differences in income and standard of living. The standard of living of the guajiro (the rural worker) was extremely low. He lived in a bohío, a small house with an earthen floor and a roof made of palm thatch. For 90 percent of the guajiros a kerosene lamp was the only form of lighting and 44 percent had never attended school. Only 11 percent drank milk, 4 percent ate meat and 2 percent eggs. The daily diet, with a deficiency of 1 000 calories, was the main reason for the constant increase in tuberculosis, anaemia, parasitic diseases and other illnesses.⁶⁶⁾

NOTES TO CHAPTER I

1. Ginzburg (1961), p. 18.
2. Oshima (1961), p. 214.
3. O'Connor (1970), p. 17.
4. Idem.
5. Alienes (1950).
6. IBRD (1952), p. 1046.
7. Cost of food index taken from Zanetti & García (1976), p. 441; US wholesale price index inferred from Alienes' figures on nominal and real income.
8. Thomas (1971), p. 546.
9. Aguilar (1972), p. 40.
10. Black (1976), p. 40.
11. Domínguez (1978), p. 21.
12. Le Riverend (1965), Ch. 22.
13. Aguilar (1972), pp. 41-42.
14. Le Riverend (1965), Ch. 23.
15. US Department of Commerce (1956), p. 9.
16. Idem.
17. Thomas (1971), p. 466.
18. Lewis (1938), p. 616.
19. Idem.
20. Ritter (1974), p. 18.
21. US Department of Commerce (1956), p. 37; and Seers (1964), p. 398, note 19.
22. Thomas (1971), Ch. XLV; Aguilar (1972), p. 41.
23. Moreno Fraginals (1978), pp. 157-163 (Vol. II).
24. Thomas (1971), p. 245.

25. Aguilar (1972), p. 44.
26. CERP (1965), p. 199.
27. Alonso & Chavez (1978), p. 74.
28. Lundahl (1979), pp. 625-626; and Lundahl (1981).
29. O'Connor (1970), p. 25.
30. Thomas (1971), p. 1563.
31. Seers (1964), pp. 12-14.
32. Calculated from data given in Soto (1977), Vol. I, pp. 240-243.
33. Idem.
34. O'Connor (1970), p. 13.
35. Furtado (1976), p. 283.
36. See Zanetti-García (1976), pp. 442-443
37. Tabares del Real (1975); Farber (1969), Ch. III.
38. Furtado (1976), p. 284.
39. Acosta (1973), p. 55.
40. US Department of Commerce (1956), p. 6.
41. United Nations (1965), p. 15.
42. Another estimate of US investments in Cuba in 1927, by Cleona Lewis (1938), p. 616, gives a figure of 1140 million dollars, of which 52.6 percent in sugar, 10.5 percent in railways, 10 percent in other public utilities, 4.3 percent in mining, 1.7 percent in tobacco, and only 1.3 percent in other manufacturing.
43. Between 1934 and 1951, 47 sugar-mills, worth 48 million dollars, passed back into Cuban hands, Padula (1974), p. 48.
44. US Department of Commerce (1956), p. 37.
45. Idem, p. 65.
46. Idem, p. 62.
47. Idem.
48. Idem, p. 63; and Brundenius (1968), pp. 94-95.

49. Brundenius (1968), p. 95.
50. Estimates by the author based on Pérez-López (1974) and CERP (1965), p. 556, for sector production data; and Pizer and Luther (1960), p. 113, for production of US subsidiaries established in Cuba in 1957.
51. Padula (1974), pp. 592-599.
52. Idem.
53. Pérez-López (1974).
54. "Food", of course, only represents part of the "cost of living". Unfortunately, there is no official cost of living index before 1953. In that year, however, an official survey showed that "food" accounted for 43.1 percent of total average living expenditures, rents for 27.4 percent, clothing & footwear for 8.4 percent, and other items for 21.1 percent, see Seers (1964), p. 33.
55. Domínguez (1978), p. 74.
56. Seers (1964), p. 13. O'Connor (1970), p. 17; CERP (1965), pp. 568-570; J-L Rodríguez (1980), pp. 184-185.
57. Mesa-Lago (1971), p. 278.
58. This concept is explained in Chapter II.2.
59. CERP (1965), Table 409, p. 555.
60. Gonzalo Rodríguez (1980), pp. 148-150.
61. Mesa-Lago (1971), p. 277.
62. Idem.
63. Mesa-Lago (1968), Table 40, p. 382.
64. Mesa-Lago (1971), p. 279.
65. Idem.
66. Agrupación Católica (1972), p. 198

II MEASURING ECONOMIC GROWTH IN REVOLUTIONARY CUBA

II.1 A Note on Statistics and National Accounting in Revolutionary Cuba

For a study on economic growth, it is essential to have access to reasonably adequate, consistent and reliable statistical information. And this does present a problem in the case of Revolutionary Cuba. But this problem in Cuba is by no means unique and similar difficulties have been encountered by scholars studying the economic performance of other socialist countries such as the Soviet Union, China, Poland, Czechoslovakia and the German Democratic Republic.¹⁾

Now it should be made clear from the outset that the situation today has much improved since the early period of the Revolution and gone are the days when important macro-economic variables, such as gross investments, had to be estimated, or even "guesstimated", from the speeches of Fidel Castro. Since the year 1972, the CEE, the Cuban Statistical Committee, has published regularly, and with gradually less delay, statistical yearbooks²⁾ which cover a wide area of topics from global indicators of the economy, to detailed agricultural and industrial statistics, labour force data (although this section is admittedly poor)³⁾, and plenty of information on education, health, and foreign trade just to mention some areas. There is no doubt that many, if far from all, of the deficiencies in adequacy, consistency and reliability of Cuban statistics reported by Carmelo Mesa-Lago in his pioneering study on the availability and reliability of Cuban statistics (from 1969)⁴⁾, had been overcome by the end of the 1970s.

On the whole, statistical information is today much more adequate and consistent than in the early 1960s, let alone the first three years of the Revolution. But this also presents a problem to the economic historian. If we are not only interested in the Cuban performance during the last ten years but also in its relation to earlier periods, the 1960s and even the pre-revolutionary era, how can we compare different periods if the data base is different, the definitions have changed, and the coverage (of products) is no longer the same?

Another problem is the reliability of the data. In countries like Cuba with clear ambitions to show the superiority of its economic and social system, the temptation to hide or distort information might be overwhelming. But not to tell the whole truth is not the same as telling a lie. Alec Nove has in an interesting essay on Soviet statistics, drawn three conclusions⁵⁾: First, that Soviet index numbers are dangerous since they tend to inflate levels of output.⁶⁾ Second, that figures on units of output are much more reliable (the Soviet planners do not keep a double set of books and the raw data given are the same that the planners use and are as accurate as the statistical agencies can make them). And third, finally, that when the Soviet government wants to conceal something, it does not publish false figures; it just refrains from publishing anything on the matter.

Much of this would also hold for Cuban statistics, I am sure. This probably explains the withholding of much statistical information for the year 1969 and to some extent also 1970 for a long time, a result of the disappointing performance of the Cuban economy in those years. But this reasoning certainly does not explain the serious lack of statistical data for the period 1959-1961. The reason for lack of data for those years is probably very simple: there were no intel-

ligible data available to the planners (which would also help to explain to some degree the fantasies involved in the tentative but abortive Five-Year plan 1961-1965 discussed later on page

The reasons for the lack of statistical data were many. First of all, statistical information was already in pre-revolutionary Cuba deficient, to say the least. There was no central statistical office, accounting in private business and government agencies was organized on an individual basis and most of the statistics produced by the state sector was deduced from tax reports, and the like.⁷⁾ The expropriation and confiscation process which started in 1959 did not improve the situation in spite of the fact that the state increasingly came to control the nation's means of production and services. At least in the short run, the flow of statistical data gradually diminished. This was partly due to institutional changes (for instance, when new agencies were created and responsibilities for statistical records changed), and partly it was due to abuses and mistakes committed by inexperienced militiamen when companies and haciendas were "intervened" and whereby statistical records were destroyed, or lost. Another problem was that the statistical system, which was already primitive, deteriorated due to the fact that most of the few trained statisticians (who had worked mainly for private business) emigrated after the Revolution.⁸⁾

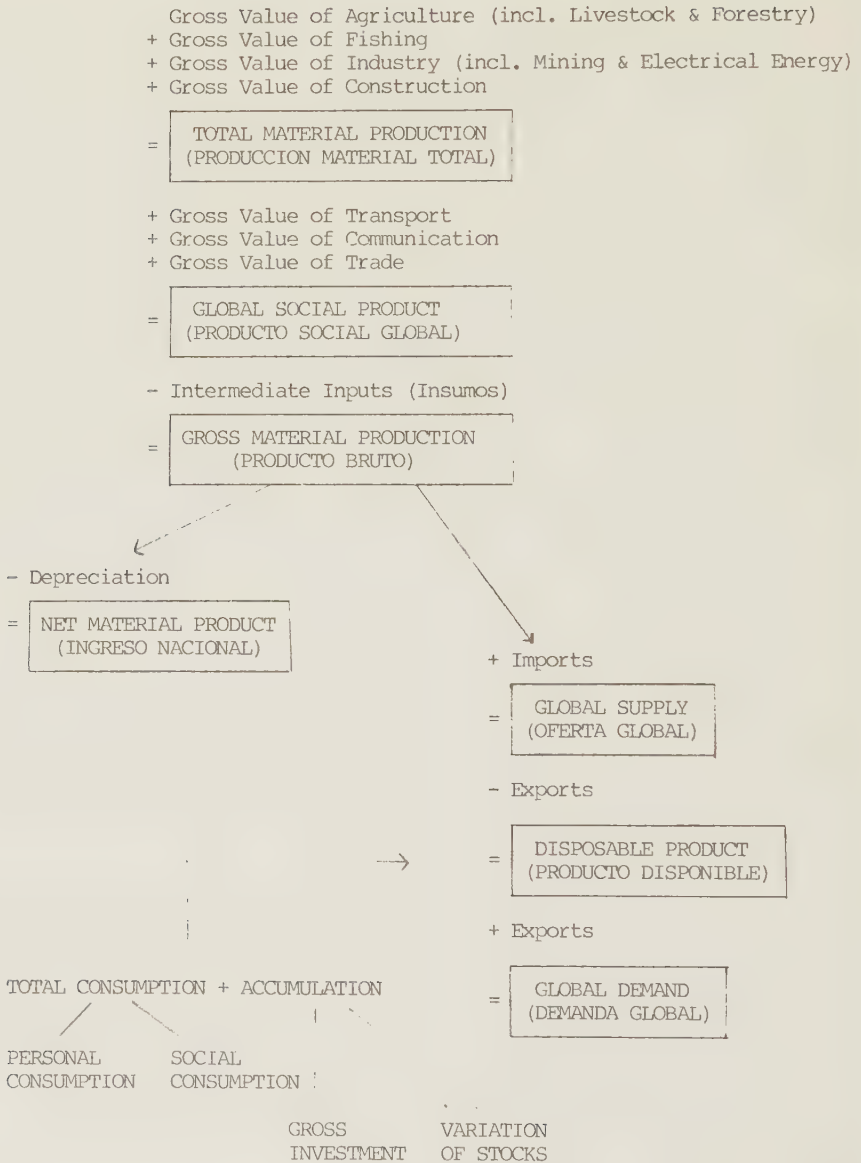
In 1961 when work on the 1962 Plan started, a new national accounting system was set up based along the lines practiced in Czechoslovakia, in the Soviet Union and in other socialist countries. Planning units were created in all parts of the administration and thousands of forms had to be filled in by mostly inexperienced and not very qualified personnel. "The forms", says Edward Boorstein, who was an eye-witness

to the economic transformation of Cuba at the time, "came out more adapted to Czechoslovakia than to Cuba; they (the Czech advisors) asked for accounting information from economic units in which accounting systems had not yet been installed, for statistics where none existed, for thousands of little estimates and projections which could not be made meaningful no matter how many telephone calls were made or meetings held, which could only tangle and confuse everything".⁹⁾

Gradually, the statistical base started improving, although for quite some time the use of statistical information was restricted and an incommensurate amount of information was classified. One of the best sources of economic data for the 1959-1963 period is, as matter of fact, a survey of the Cuban economy done by the UN Economic Commission for Latin America (ECLA).¹⁰⁾ In this report rudimentary national accounting for the period 1961-1963 (based on Soviet accounting principles), was for the first time since the Revolution presented abroad. Macroeconomic variables, such as gross value of production by branches of the economy were later introduced in the first Boletín Estadístico (1964) and the presentation was improved in successive issues. A careful study of these and other statistical publications makes it possible to make a more or less faithful reconstruction of the national accounts practised in Cuba after 1962. The result of such a reconstruction is shown in Figure II.1.¹¹⁾

The concept of national income adopted in Cuba is that of material product¹²⁾, gross or net (in the latter case net of depreciation), and the methodology falls generally into line with the Soviet practice.¹³⁾ The product for any one year is composed of the value added from agriculture, mining, manufacturing, electricity, construction and that part of transport, communications and trade which serves the materially

Figure II.1 The Cuban National Accounting System



productive sectors. Omitted are not only passenger transportation and private use of communications, but also finance and insurance, public administrations, army and internal security, education, health, private housing, and independent professions. It follows from this definition that the method used is that which is generally known as the production approach instead of the income approach.¹⁴⁾

A first step towards analysing the economic growth of Cuba after the Revolution would then be to construct time series for the aggregates shown in Figure II.1. But here another problem arises, and a problem that has both bothered and annoyed scholars studying the Cuban economy, and this is that only parts of the national accounts appear in the statistical publications. In addition to this, some of the figures are given in constant (1965) prices while others, and after 1966, most of them, in current pesos. Since there are no price indices available (simply for the reason that, officially, there has been no inflation in Cuba since 1965) it is virtually impossible to deflate the current price figures. But not only that, the only figure at the macro level released by the Statistical Committee after 1970 is the Global Social Product (GSP), broken down by economic sector. The Cuban Statistical Committee, however, does occasionally supply information to the United Nations on Material Product in current prices. This source also gives a percentage breakdown by use, making it possible to estimate aggregates such as Personal Consumption, Social Consumption and Capital Accumulation (Formation). Thus I have tried to reconstruct the Cuban national accounts as far as possible from various sources and the result of this exercise is shown in Table II.1.

As can be seen, there was an intention in the 1960s to account only in constant prices, a task that supposedly would be facilitated by the fact that monetary transactions between

Table II.1 Global indicators of the Cuban economy, 1962-1980
(million current pesos)

Year	Global Social Product	Inter- mediate Inputs	Gross Material Product	Deprec- iation	Net Material Product	Imports	Global Supply	Exports
1962*	6 082	2 384	3 698	188	3 510	783	4 482	689
1963*	6 013	2 277	3 737	193	3 544	769	4 507	475
1964*	6 455	2 380	4 075	218	3 857	991	5 066	568
1965*	6 771	2 633	4 138	250	3 888	886	5 022	713
1966*	6 709	2 724	3 986	259	3 727	894	4 880	586
1967	7 212	3 129	4 083	na	na	999	5 035	705
1968	7 331	2 954	4 377	na	na	1 102	5 432	651
1969	7 236	3 055	4 181	na	na	1 222	na	667
1970	8 356	4 152	4 204	281	3 923	1 311	5 796	1 050
1971	8 936	4 114	4 822	na	na	1 387	na	861
1972	10 349	4 308	6 041	na	na	1 190	na	771
1973	11 910	5 198	6 712	560	6 152	1 463	8 735	1 153
1974	13 424	6 010	7 414	461	6 953	2 226	10 101	2 237
1975	13 918	na	na	na	na	3 113	na	2 952
1976	14 089	na	na	na	na	3 180	na	2 692
1977	14 651	na	na	na	na	3 462	na	2 918
1978	16 295	na	na	na	na	3 574	na	3 440
1979	16 915	na	na	na	na	3 687	na	3 500
1980	17 592	na	na	na	na	na	na	na

cont.../

na= not available

* = constant (1965) pesos

Sources: Figures for 1962-66: BEC 1968; for 1967-68: BEC 1970 & 1971; for 1969: AEC 1972; for 1970-1974: United Nations (1979); Table 187; for 1975-79: AEC 1976 & 1979; for 1980: BEM, March 1981; Investment data after 1970 are all from Juceplan (1980:1), p. 33; Some data are derived in accordance with Figure II.1.

Figure II.1 (cont.) Global indicators of the Cuban economy, 1962-1980
(million current pesos)

Year	Disposable Product	CONSUMPTION			ACCUMULATION		
		Personal	Social	Total	Gross Investment	Variation of Stocks	Total
1962*	3 793	2 491	417	2 908	626	259	885
1963*	4 032	2 653	397	3 050	733	249	982
1964*	4 498	2 781	489	3 269	810	419	1 229
1965*	4 309	2 888	474	3 362	842	105	947
1966*	4 294	2 772	474	3 246	935	113	1 048
1967	4 330	2 678	517	3 195	1 032	103	1 135
1968	4 781	3 298	490	3 788	918	75	993
1969	na	na	na	na	817	na	na
1970	4 746	3 615	168	3 783	669	294	963
1971	na	na	na	na	964	na	na
1972	na	na	na	na	1 094	na	na
1973	7 582	5 503	134	5 637	1 475	470	1 945
1974	7 864	5 486	148	5 634	1 712	518	2 230
1975	na	na	na	na	2 304	na	na
1976	na	na	na	na	2 588	na	na
1977	na	na	na	na	2 766	na	na
1978	na	na	na	na	2 624	na	na
1979	na	na	na	na	2 606	na	na
1980	na	na	na	na	2 669	na	na

na= not available

* = constant (1965) pesos

Sources: see previous page

state enterprises in the industrial sector (Empresas Consolidadas) were being gradually abolished altogether in a step towards the complete elimination of the market (see further p.72). This means that all macroeconomic aggregates are shown in constant prices (and only in constant prices!) for the years 1962-1966. But then something apparently went wrong.

The basic principle of the price policy had been to use the same prices as were quoted on 15 November 1961 in the so-called centralized budgetary system, pending the results of a new price policy.¹⁵⁾ In 1963, a General Law of Prices was formulated laying down the principles for a new price system. The task was, however, complicated by the fact that the importation of a series of new commodities, especially machinery, successively came to distort the price system in use.¹⁶⁾ The situation was further aggravated by the disappearance of the Ministry of Finance in 1965, the organism that had been in charge of price revision. In view of this complex situation, the idea of formulating new prices was abandoned for the time being and prices were frozen at their 1965 level.¹⁷⁾ The complication with this system arises in the trade sector. Because even if retail prices are frozen, the problem still remains how to deal with foreign trade. The trade sector was therefore left as a residual (in current prices) in national accounting at least until the Economic Reform of 1976 when the principle of "economic calculation", or self finance system, (the Soviet concept "Khozrazchet"¹⁸⁾ was gradually introduced into all sectors of the economy.¹⁹⁾

There are two problems that arise in interpreting the data in Table II.1. First, it is difficult to estimate growth rates when some of the figures are given in current prices and we have no reliable indicator of price changes. Second, it is hard to say how comparable any of the aggregates in Table II.1

are with the estimates of real national income of the pre-revolutionary era discussed in Chapter I.

A solution to this dilemma would be to only consider Total Material Production, which embraces the sectors of Agriculture (in a broad sense, that is, including Fishing and Forestry), Mining (including Smelting), Manufacturing, Electricity and Construction. One advantage with this approach is that the concept of Total Material Production very closely corresponds to the Pérez-López concept of Total Industrial Activities²⁰⁾ except for agriculture and construction and thus a comparison of economic growth in Revolutionary Cuba with economic growth in pre-revolutionary Cuba would be possible. Another advantage is that Total Material Production series are always shown in constant (1965) prices after 1965.²¹⁾ I have therefore in the following analysis opted for the calculation of Gross Value Added of Total Material Production (that is, at factor cost) for the following three periods: 1946-1961 (in 1952 prices), 1961-1968 (in 1965 prices), and 1968-1980 (likewise in 1965 prices).

One of the problems, and perhaps the most critical problem, involved in the construction of output indices is the selection of weights. In his study on economic growth in the People's Republic of China, Kang Chao says that "in a Soviet-type economy, where the market mechanism ceases to function and prices are arbitrarily determined by planners, there is no a priori reason why value weights, net or gross, are superior to nonvalue weights, since value weights in this case may not necessarily reflect the relative importance of the output components".²²⁾ But the use of nonvalue weights has disadvantages of its own, which may more than offset its advantage, owing to the difficulties of securing meaningful nonvalue weights in socialist countries.²³⁾ The selection of weights in this study will be discussed for each of the three periods.²⁴⁾

II.2 An Index of Total Material Production, 1946-1961

The starting point in the calculation of the index for this period is Pérez-López' earlier mentioned estimate of Cuban industrial output 1930-1958.²⁵⁾ The Pérez-López study is an important contribution to the knowledge of the development of the industrial sectors in Cuba before the Revolution since it is an independent estimate based on the revaluation of physical output data, in contrast with the much criticized National Bank indexes of industrial production.²⁶⁾

One weakness of the Pérez-López study is that it is based on a rather limited number (or forty to be precise) of products but Pérez-López claims that these products account for 62.8 percent of all sales of the non-sugar industrial sectors in 1953 (compared with 53 percent for the National Bank Index).²⁷⁾ Pérez-López has constructed a Laspeyre index based on 1952 year prices, which actually are a mixture of export prices, wholesale prices and retail prices as found in statistical publications and articles. In this way he has constructed production indices for the following twelve branches of Cuban industrial production: Beverages, Tobacco, Textiles, Processed Food, Sugar, Shoemaking, Rubber Products, Paper and Paperboard, Construction Materials, Fishing²⁸⁾, Mining and Electricity & Gas.

The criterion used by Pérez-López in determining the relative importance of each of these branches was the percentage of gross value added created in each of them. Since there were no official Cuban value added data available, gross value added was estimated as the difference between the gross value of output (sales) and the purchase of materials and other services in each of the twelve branches. Such data for 1953 were derived from a report by the Tribunal de Cuentas.²⁹⁾

The estimates of gross value added in 1953 were thus used as weights in the calculation of an index of total industrial production for the period 1930-1958 (cf Table I.4). In Table II.2 I have added estimates for the years 1959-1961 in order to be able to link this index to subsequent estimates of TMP for the period 1961-1968. (See II.3).

Of the forty products considered in the Pérez-López index it was possible to get physical output data for most of them, also for the years 1959-1961 and the "basket" is pretty much the same as the one used by Pérez-López. It should also be mentioned that the indices start in 1946, and not in 1930, for two reasons: (a) because they will serve for the construction of indices of Total Material Production and estimates for the agricultural sector are not available before 1946, and (b) because the estimates by Pérez-López are rather shaky for some of the years in the 1930-1945 period and are often interpolations or extrapolations in the absence of physical output data.³⁰⁾

The next step was to make estimates of Total Material Production (TMP) for the period 1946-1961. As shown in Figure II.1, this concept is equal to the sum of agricultural activities (including fishing and forestry), industrial activities (including mining and electrical energy) and construction. The sum of the gross values of each of these sectors gives the gross value of TMP. But it also follows from Figure II.1 that by subtracting of intermediate inputs from this gross value, we get what is equivalent to the Gross Value Added of TMP, or TMP at factor cost. This latter concept is far better than Gross Value of Production, since it avoids double counting.

Oshima has in his study on the Cuban National Income in 1953 also made estimates of Net Domestic Income at factor cost by broad economic sectors. (See Table II.3).

Table II.2 Net Domestic Income at Factor Cost in 1953
(million current pesos)

Agriculture, forestry and fishing	533.4	22.7%
Mining and quarrying	28.4	1.2%
Manufacturing	517.0	22.0%
Construction	81.2	3.5%
Electricity, gas, water, sanitary services	32.2	1.4%
Transportation and communication	120.7	5.1%
Wholesale and retail trade	347.9	14.8%
Banking, insurance and real estate	56.9	2.4%
Ownership of dwellings	102.1	4.3%
Public administration and defence	140.1	6.0%
<u>Services, unspecified</u> -----	<u>389.4</u>	<u>16.6%</u>
TOTAL	2 349.3	100.0%

Source: Oshima (1961), p. 215.

By using his Net Value Added data (that is, net of depreciation) by sector as weights, it has been possible to construct an index of Total Material Production at factor cost for the period 1946-1961, the details of which are shown in Appendix Table 5. Oshima, unfortunately, does not distinguish between sugar and non-sugar agriculture and values for these two subsectors have been estimated from relative shares given by Acosta for the same year.³¹⁾ The output indices given in Table II.3 have then been weighted by the net values added (as given by Oshima), but as noted the Pérez-López index does not include agriculture, or construction. In the case of agriculture the solution was found by using the FAO index of agricultural output in Cuba for the period in question³²⁾, and then by subtracting the value of sugar production (which is already known) arrive at an estimate of the value of non-

Table II.3

Indices of Cuban Industrial Production, 1946-1961 (1953=100)

	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
Beverages	78.0	76.0	78.4	80.3	87.8	99.6	112.1	100.0	100.1	100.7	104.8	107.5	102.8	121.0	114.8*	108.5
Tobacco	90.9	95.9	99.1	95.8	93.4	96.5	103.7	100.0	93.5	97.2	104.1	113.0	106.4	108.5	93.7*	79.0
Textiles	70.0	66.5	54.8	66.5	136.3	98.9	110.4	100.0	126.2	116.6	130.5	141.2	144.7	184.1	152.6	113.5
Processed Foods	49.4	49.4	49.4	54.9	58.5	56.1	77.3	100.0	100.4	107.4	120.5	130.9	128.7	136.9	152.8	122.7
Sugar	78.0	111.8	107.0	101.0	106.8	110.8	139.4	100.0	106.6	108.8	101.6	108.7	117.2	120.8	118.8	137.1
Shoemaking	86.4	124.9	96.0	81.0	88.7	89.8	89.3	100.0	107.3	114.6	126.4	139.1	145.5	151.8	128.1	64.6
Rubber Products	70.7	76.8	71.9	66.6	103.8	129.5	112.3	100.0	119.2	119.0	151.1	177.7	290.9	290.0*	289.4	305.5
Paper & Paperboard	121.3	50.0	65.0	55.4	85.9	90.0	87.2	100.0	103.8	109.1	122.5	126.9	128.5	162.5	160.0	217.8
Construction																
Materials	59.1	68.0	70.1	76.8	77.8	94.2	103.3	100.0	103.3	112.0	145.4	158.4	175.9	160.8	194.5	208.3
TOTAL																
MANUFACTURING	73.8	84.0	82.3	82.0	93.0	95.7	112.7	100.0	104.6	107.3	113.6	121.9	124.3	131.6	130.6	135.2
Excluding Sugar	71.7	70.0	69.9	72.4	86.0	88.1	99.3	100.0	103.6	106.5	119.6	128.5	132.9	144.5	144.6	133.0
ELECTRICITY & GAS	52.9	56.8	63.5	68.6	75.4	83.1	91.3	100.0	108.1	119.2	131.4	134.4	145.2	144.1	149.4	149.7
MINING	62.6	42.4	37.9	40.1	44.5	55.2	80.2	100.0	87.7	98.5	88.8	92.3	93.2	76.1	53.0	47.9
TOTAL INDUSTRIAL PRODUCTION																
Excluding Sugar	71.6	84.8	87.3	81.9	90.6	94.7	114.2	100.0	104.0	108.1	110.5	117.8	124.4	128.4	126.3	129.6
Excluding Sugar	66.6	63.7	64.2	67.1	78.0	82.1	94.7	100.0	102.1	107.6	117.5	124.9	130.0	134.4	132.1	123.7

*) interpolation

Sources: 1946-1958: Pérez-López (1971), pp. 70, 75 and 140-141;

1959-1961: based on physical output data given in ECIA (1965), p. 278;

Mesa-Lago (1969), second part, p. 62, and ECIA (1969), pp. 79-87.

sugar agricultural production. In the case of the construction industry, the National Bank index of construction for the period 1946-1958 has been applied.³³⁾ Since there are no estimates available for the development of the construction industry in the period 1959-1961, I have simply used official figures for cement production as crude indicators for those years.

One advantage with extending the 1946-1958 period, as covered by Pérez-López, until 1961 (using the same basket and prices), is that it allows for an appraisal of the first three crucial years after the Revolution. This is a period for which growth claims have widely varied in the past. Thus both O'Connor and Noyola maintain that industrial production grew by 17 percent in 1959, and by no less than 29 percent in 1960 (by 25 percent according to Noyola³⁴⁾). A Cuban source claimed in 1968 that industrial production increased by 13 percent in 1960 and by 6 percent in 1961.³⁵⁾ Although there are no longer any official references to growth during this so-called transitional phase (towards socialism) of the Cuban economy, the growth rate of 13 percent in 1960 was repeated by the Cuban economist José-Luís Rodríguez in a recent article.³⁶⁾

The figures in Table II.4 suggest much more moderate growth rates during the first three years after the Revolution, with manufacturing production (including sugar) increasing by 7.0 percent in 1959, declining by 0.5 percent in 1960 and further declining by 1.2 percent in 1961. Excluding sugar, the corresponding percentages would be +8.8 percent (in 1959), +0.1 percent (in 1960) and -8.0 percent (in 1961). This new estimate does not, of course, necessarily mean that the earlier mentioned higher growth rates are not correct.³⁷⁾ What it does mean is that these are the growth rates of the basket of goods used by Pérez-López for

the period 1946-1958, valued in 1952 prices and weighted by gross value added in 1953. However, that the early growth estimates for those years probably were inflated is also suggested by Mesa-Lago, using a composite index of agriculture and industry weighted by 1957 prices.³⁸⁾ A comparison of different growth estimates for the period 1959-1961 is shown in Table II.4.

Table II.4 Growth estimates, 1959-1961 (Annual Percentage Rate)

	<u>1959</u>	<u>1960</u>	<u>1961</u>
<u>Estimates in this study</u>			
Total Material Production	4.3	1.5	2.8
Sugar-cane Production	5.1	-1.1	14.3
Non-sugar Manufacturing	8.8	0.1	-8.0
<u>Mesa-Lago</u>			
Combined index of agri- culture and industry	5.6	-1.5	7.1
<u>Noyola</u>			
Industrial Production	17	25	---
<u>PEL</u>			
Industrial Production	---	13.0	6.2

Sources: Appendix Table 5B; Mesa-Lago (1971), p. 329;
 Noyola (1961), p. 416; Pel (1968), p. 16.

II.3 An Index of Total Material Production, 1961-1968

Fortunately, much more information is readily available for the period after 1961. There are rather complete sets of national accounts for 1962-1968 and the definitions of categories are reasonably homogeneous for that period. Since Cuban production series are given in 1965 prices the logical starting point would be to estimate the value added of Total Material Production for that year. Unfortunately, however, there are no published official value added estimates for 1965. Instead, I have had to resort to the year 1962 as the point of departure for the estimates of value added in 1965.

In the absence of data for value added (gross, or net of depreciation) it has been suggested that the total wage fund by sectors be used as crude weights instead. Hodgman employed wage bill weights already in 1954 in order to construct an index of Soviet industrial production, covering the period 1928-1951³⁹⁾, and Kang Chao has used the same method in his estimates of the rate of growth of industrial production in China (1949-1957)⁴⁰⁾. Although wage bills no doubt are better as weights than non-value weights (such as labour inputs) one of the shortcomings in using such weights is that they implicitly overrepresent primary activities since the share of wages and salaries in the latter (in relation to value added) as a rule is much higher than in industrial production, and are for this reason only used as a complementary tool here.

The method has been the following. Official Cuban statistics give the gross value of production of the Global Social Product (and thus also for TMP) in constant (1965) prices for 1962. These figures are reproduced in Table II.5 (first column). The ECLA study, earlier referred to, also

Table II.5 Estimate of total material production at factor cost in 1962 (million pesos)

	Gross Value of production (1965 prices)	%	Gross Value Added (1961 prices)	%	Wages & Salaries (State Sector)	%	Estimate of total wages & salaries (Incl. Private Sector)	%	Adjusted Gross Value Added (1965 prices)
AGRICULTURE*, FORESTRY & FISHING	924.5	22.9	700.8	36.7	276.0	28.4	631.0	45.5	742.3
Sugar Cane	267.6	6.6	204.8	10.7	117.3	12.1	208.3	15.0	245.0
Non-Sugar Agriculture	316.3	7.8	266.4	13.9	97.6	10.1	225.0	16.2	264.7
Livestock	310.2	7.7	175.9	9.2	57.1	5.9	174.5	12.6	205.3
Forestry	12.2	0.3	38.3	2.0	3.2	0.3	9.3	0.7	10.9
Fishing	18.2	0.5	15.4	0.8	0.8	0.1	13.9	1.0	16.4
MINING	66.8	1.7	43.7	2.3	26.1	2.7	26.1	1.9	56.6
MANUFACTURING	2600.3	64.3	900.1	47.1	464.2	47.8	524.7	37.8	1129.3
Metallurgy & Mechanical Industry	127.7	3.2	64.4	3.4	40.3	4.1	na	na	75.4
Construction Materials	152.1	3.8	36.5	1.9	57.0	5.9	na	na	76.1
Petroleum	279.8	6.9	94.3	4.9	14.1	1.5	na	na	136.5
Chemicals	231.1	5.7	106.5	5.6	31.4	3.2	na	na	153.0
Textiles & Leather	273.7	6.8	126.5	6.6	64.7	6.7	na	na	139.9
Sugar	425.7	10.5	99.9	5.2	119.8	12.3	na	na	153.7
Food	626.5	15.5	155.9	8.2	51.1	5.3	na	na	208.6
Beverages & Tobacco	279.8	6.9	149.4	7.8	46.9	4.8	na	na	108.3
Other Industry	203.9	5.0	66.7	3.5	38.9	4.0	na	na	77.8
ELECTRICITY	79.1	2.0	58.6	3.1	28.0	2.9	28.0	2.0	66.6
CONSTRUCTION	369.9	9.2	207.2	10.8	176.8	18.2	176.8	12.8	253.1
TOTAL MATERIAL PRODUCTION	4040.6	100.0	1910.4	100.0	971.1	100.0	1386.6	100.0	2247.9

* = excluding "agricultural services"

Sources: Gross Value of Production: BEC 1968 pp. 18 & 20; Gross Value Added (1961 prices): ECLA 1965 pp. 275, 286 & 290; Wage Fund in (State Sector): BEC 1968; Wage Fund (Private Sector): Calculated from Minrex (1966) p. 58 and O'Connor (1970) p. 210; Adjusted Gross Value Added: author's estimates.

gives an estimate of gross value added of TMP for the years 1961-1963 in 1961 prices. The problem, however, is not only that the prices are those of 1961, but also, and more seriously, there are some errors in the ECLA estimate (the 1962 figures are shown in column 2 of Table II.5). Thus, for instance, the gross value added of forestry turns out to be more than three times larger than the gross value of production which is, of course, impossible, and the wage bill in the construction materials sector turns out to be larger than the value added.

I have therefore opted for using the wage bill in the various sectors as a check (column 3). The problem then arises that official Cuban statistics only record wages and salaries in the state sector. This means that a large share of the incomes are excluded, primarily in the agricultural sector which accounted for 79 percent of total private employment in 1962.⁴¹ Fortunately, there do exist estimates of private employment in 1962, both in agriculture (by sub-sector) and in manufacturing (although not by sector)⁴², and also average monthly income estimates for the same categories⁴³. In this way it has been possible to make an estimate of the total wage bill by sector (column 4).

In the case of the subsectors of agriculture, gross value added has been derived, assuming that the total wage bill of those sectors amount to 85 percent of the gross value added.⁴⁴ In the case of the industrial branches, the procedure has been slightly different because in this case there do exist value added estimates for other years. Juceplan, in a study from 1966, reports that the state wage bill accounted for 41 percent of gross value added in the manufacturing sector in 1964.⁴⁵ Since

we know the total wage bill referred to (464.2 million pesos) we can derive the gross value added in manufacturing (1 129.3 million pesos). The Juceplan report also gives value added figures by industrial branches for the year 1963. Since the growth rates of industrial production by sectors are known⁴⁶⁾, we can now easily estimate, through application of these weights, value added for not only 1962 and 1963 but also for the whole period 1962-1968. The estimates of TMP at factor cost (or gross value added) and annual growth rates accordingly calculated for the period 1962-1968 are shown in Appendix Tables 7 & 8. An estimate for 1961 has been added since it was considered important to have an alternative estimate of TMP (in 1965 prices) for that year and a linkage year with the earlier estimates for the period 1946-1961 (based on 1952 prices). The 1961 figures were estimated on the basis of the already cited ECLA survey. This study gives gross value added for both 1961 and 1962 (in 1961 prices). The 1962 estimate is based on a selection of physical output data, the quality of which is unknown, but it has nevertheless been suggested that these data are the best ones available for this period.⁴⁷⁾ By applying the weights in 1962 to the growth indicators by sectors between 1961 and 1962 I have arrived at the 1961 estimate shown.

Finally, a consistency check, Table II.6 shows a comparison of Total Material Production and Gross Material Product at factor cost, by branches, for the year 1965, with the official Global Social Product figures for the same year. The total GMP figure of 4 137.5 million pesos is the same as the official GMP figure referred to in Table II.1.

Table II.6 A Reconstruction of Total Material Production and Gross Material Product at Factor Cost, 1965 (1965 prices)

	GROSS VALUE ADDED (factor cost)		GROSS VALUE OF PRODUCTION	
	million pesos	%	million pesos	%
AGRICULTURE, FORESTRY & FISHING				
Sugar-cane	829.8	20.1	1 074.0*	15.9
Non-sugar agriculture	334.7	8.1	365.6	5.4
Livestock	215.4	5.2	257.3	3.8
Forestry	255.3	6.2	385.9	5.7
Fishing	6.1	0.1	6.8	0.1
	18.3	0.4	20.3	0.3
MINING	63.1	1.5	74.5	1.1
MANUFACTURING				
Metallurgy	1 190.4	28.8	2 743.7	40.5
Construction Materials	68.0	1.6	115.1	1.7
Petroleum	74.5	1.8	149.0	2.2
Chemicals	142.0	3.4	291.1	4.3
Textiles & Leather	156.9	3.8	237.0	3.5
Sugar	148.8	3.6	291.1	4.3
Food Processing	200.4	4.8	555.2	8.2
Beverages & Tobacco	200.6	4.8	602.6	8.9
Other Industry	112.7	2.7	291.1	4.3
	86.5	2.1	211.5	3.1
ELECTRICITY	79.9	1.9	94.8	1.4
CONSTRUCTION	357.0	8.6	521.8	7.7
TOTAL MATERIAL PRODUCTION	2 520.2	60.9	4 508.8*	66.6
TRANSPORT				
COMMUNICATIONS				
TRADE	1 617.3	39.1	348.1	5.1
OTHER			51.5	0.8
			1 838.7	27.2
			23.8	0.3
GROSS MATERIAL PRODUCT	4 137.5	100.0	--	
GLOBAL SOCIAL PRODUCT	--		6 770.9*	100.0

*) Including "agricultural services".

Source: Table II.5; Appendix Table 8 & AEC 1968.

II.4 An Index of Total Material Production, 1968-1980

There is a serious breach in the homogeneity of the statistical series after 1966 (and especially after 1968), which makes global indicators, like those presented in Table II.1 difficult to evaluate for later years. In some cases there are not even figures after 1974 (for instance, in the case of GMP, NMP, Disposable Product and Consumption). Fortunately, however, the statistical series of physical output data are quite detailed after 1968, and for this reason I have opted for a revaluation of physical output using constant prices as weights. The problem then was which prices to use. As indicated earlier, the Cuban Statistical Office and the Planning Office reportedly still use 1965 prices which is a truth with modifications since, obviously, all new products introduced in Cuba have the price of the year when they were first produced or introduced in the country.

This is a serious problem, indeed, since it is commonly believed, in Western countries at least, that the fixing of prices for new products in the basket considered in a production index, is responsible for the "upward bias" in the production indices in centrally planned economies.⁴⁸⁾ When industrial output increases at a rapid rate, and from a low level, and if simultaneously new products appear in increasing numbers, particularly in the mechanical industry, it becomes a dilemma for the planners to establish "fixed prices" for products which did not exist in the base period when fixed prices were established.⁴⁹⁾ There have been a great variety of new products introduced in the Cuban economy since 1965 but, notwithstanding, the Cubans have insisted, until 1981, on accounting with "1965 prices". This should not, however, be construed as meaning that there has been a deliberate attempt by the Cubans to exaggerate growth

but rather it has been a result of the frustrating search for an alternative and better price system.

The Cuban State Committee on Prices has facilitated the task for me by offering me a complete listing of retail prices applied in Cuba in 1978.⁵⁰⁾ These are officially "1965 prices" but are rather a mixture of prices for the reasons mentioned above. As a matter of fact one could say that they are "1978 prices" since these were the prices paid by the Cuban consumer in 1978. Ideally, it would be better to use factory prices, or wholesale prices, but retail prices are better than no prices at all. Physical output data were thus revaluated with the familiar Laspeyre's Measure $\sum p_i^0 q_i^t$, with 1965 year retail prices as weights (p_i^0). Unfortunately, retail prices are as a rule limited to final consumer goods and in the case of the basic and intermediate industries I have had to use the official sector indices of output, with the exception of the mining industry where the 1965 export prices have been used as weights. The production indices by sectors have then been weighted by the value added weights in 1968, thus linking the series to the 1961-1968 series. The result of this whole exercise is shown in Appendix Table 9. Some of the physical output data for the period 1958-1980 used in this exercise are shown in Appendix Tables 11-16.

NOTES TO CHAPTER II

1. As regards the Soviet Union, see for instance, Bergson (1961), Hodgman (1954), Bornstein (1965), Gerschenkron (1951), Grossman (1960), Nutter (1962); China, see for instance Eckstein (1961), Chao (1965), Ming Li (1959), Inshikawa (1965); GDR, Hungary, Czechoslovakia and Poland, Alton (1962), Alton (1963), Alton (1965), Zauberman (1964).
2. The 1975 Statistical Yearbook (AEC 1975) was published in 1978, AEC 1976 and 1977 were published in 1979, and AEC 1978 and 1979 in 1980.
3. The author was told in November 1980, by CEE officials that the labour force section will be substantially improved and enlarged in the future.
4. Mesa-Lago (1969), Part I & II.
5. Nove (1966), p. 267.
6. Mesa-Lago (1969), p. 70 (Part I).
7. Idem, p. 71.
8. Idem, p. 72.
9. Boorstein (1968), p. 160.
10. ECLA (1964).
11. This reconstruction of the Cuban national accounting system was published in an earlier study by the author, see Brundenius (1979:1) and it has been verified by the CEE (Nov. 4, 1980).
12. It seems that there were intentions to change this system in 1968, see Juceplan (1968), p. 17 (note 6), but as far as known the basic principles of the system are still practised as of 1981.
13. For a summary and criticism of the Soviet practice, see Kaser (1957), pp. 83-104.
14. United Nations (1971); see also Ming Li (1959), p. 75.
15. Regalado (1981), p. 51 and CEP (1979). The "budgetary system of finance" was based on the principle of one single state enterprise within which each group of industries constituted a "consolidated enterprise" (empresa consolidada), for instance, the sugar industry. All revenues went to the state depriving the enterprises of an independent source of financing, and thus all financing also came from the central budget, thus the name.
16. ECLA (1980), p. 325.
17. Regalado (1981), p. 52.

18. Bettelheim (1975), pp. 124-127, Kantorovich (1963), and Liberman (1966).
19. Between 1962 and 1966 the self-finance system was only applied in agriculture and foreign trade, see Valdés (1979), p. 14.
20. See Table I.4, p.
21. At the beginning of 1981 a new price system was introduced in Cuba but the effects of this system are not known.
22. Chao (1965), p. 26.
23. Idem, pp. 26.27.
24. The weighting problem is not, however, related only to relative prices as such but also depends on the actual basket of goods produced; see Nutter (1962), p. 110.
25. Pérez-López (1974).
26. CERP (1965), p. 568.
27. Pérez-López (1974), p. 58.
28. It is not known why Pérez-López has decided to include "fishing", which is hardly an industrial activity (as defined by P-L himself). At any rate, since fishing only accounts for 0.63 percent of the gross value added (of the branches considered by P-L), it does not affect the overall index in any significant way.
29. Pérez-López (1974), p. 58.
30. Idem, pp. 121-128.
31. Acosta (1973), p. 76.
32. As recorded by Ritter (1974), p. 215, for the years 1949-1961. Estimates for the period 1946-1948 have been added, based on data on agricultural sector income, given in IBRD (1952), p. 1043.
33. CERP (1965), p. 568.
34. O'Connor (1970), p. 271 and Noyola (1961), p. 416. The 29 percent growth rate given by O'Connor is probably a misprint since he is actually referring to the Noyola article.
35. PEL (1968), p. 16.
36. J-L Rodríguez (1979), p. 151.
37. The newly created Statistical Research Institute of the CEE is currently working on a complete revision of the national accounts of Cuba since 1950.

38. Mesa-Lago (1971), p. 329, gives the following output index for agriculture and industry combined (1959=100): 1957= 94.6; 1958= 94.7; 1960= 98.5; and 1961= 105.5. It is not explained, however, how this index has been constructed, and which products are included.
39. Hodgman (1954).
40. Chao (1965).
41. Minrex (1966), p. 58.
42. Idem.
43. Estimate by Juceplan quoted in O'Connor (1970), p. 210.
44. This is the share in Peruvian agriculture, see Brundenius (1976:1), Appendix. In Poland (1956) the corresponding share was no less than 98 percent, see Alton (1965), p. 58. This may indicate that the 85 percent figure is a minimum.
45. Juceplan (1966), p. 110.
46. Growth indicators by sector given in BEC 1968.
47. Mesa-Lago (1969).
48. Nove (1966), Gerschenkron (1951), and Ishikawa (1965), p. 35.
49. Peter Wiles finds this problem so serious that he suggests that an index of Laspeyre-type is wholly misleading in less developed economies, and that "for welfare purposes only the Paasche index applies" (that is, using present year weights), see Wiles (1950), p. 250. Perhaps a Divisia type chain index would be even better but this would require an amount of price and output data, usually out of reach in these countries.
50. CEP: Lista Oficial de Precios (Five volumes), Havana, 1981.

III. THE ECONOMIC PERFORMANCE OF REVOLUTIONARY CUBA

III.1 The Unfolding of a Revolution

Although there were no concrete actions proposed in the first Programme of the Revolutionary Government - the so-called Programme Manifesto of the 26th of July Movement¹⁾ - the economic goals of the government could be summarized as: increase the rate of growth, reduce the dependence on sugar, diversify agriculture, develop the industrial sector, diversify trade relations, and increase the standard of living of the population through the expansion of health, education and welfare programmes. The only problem was that in this package there were no priorities given - it was just taken for granted that everything could be carried out at the same time, since it was tacitly assumed that the revolution would imply such a qualitative change in the relations of production (principally through a profound agrarian reform) that the productive forces would expand by themselves.

The main themes of the Programme Manifesto had been the question of national sovereignty and social justice, and implicit in the early actions by the leadership of the Revolution was the redistribution of income, from the rich to the poor, and from the towns to the rural areas. At the beginning of 1959 however, the propertied classes and the bourgeois opposition to Batista, who had supported the 26th of July Movement, still had reasons to be rather optimistic about the future. Castro even announced that all debts of the past regime would be honoured in order to strengthen the credit system and maintain investor confidence.²⁾

Nevertheless, almost immediately after taking over the

premiership in January 1959, Fidel Castro revealed his adamant determination and seriousness by seizing the US owned Cuban Electric Company, which had been the target of many accusations of inefficient operations and monopoly profits.³⁾ At the same time Castro announced important measures to the benefit of the poorest sectors of the population, especially those in the rural areas. Already in January 1959 electrical rates for rural areas were reduced by half, and in March a Rent Law was announced, implying reductions of 50 percent in the rents of all who paid less than 100 pesos per month and between 40 percent and 30 percent for the tenants in higher brackets.⁴⁾ This came as a shock for the wealthy who had money invested in real estate and this was Castro's first "betrayal" for those people. But there would be many more. The Revolutionary Government gave in the Rent Law its first clear indication of its indifference to vested property interests. This was the first time that there was a clash between Castro's promises to the poor of a better future and his assurance to the capitalist class that they had nothing to fear. From that moment on Castro became implacable in carrying through his reforms, yielding nothing to his opponents.

The real estate interests were soon hit by another decree, the Vacant Lot Law, which wiped out any appreciation in the market value of urban real estate in excess of 15 percent.⁵⁾ The reaction did not take long and the conservative daily Diario de la Marina warned that the Rent Law would virtually paralyze investment, causing stagnation and increased unemployment in the construction industry. The reaction on the part of the capitalists had its effect. In 1959 private construction decreased by 56.5 percent in relation to the previous year.⁶⁾ Soon after the announcement of the decree, Fidel Castro laid the

cornerstone of a people's housing project in East Havana for the construction of 2 000 units for low-income families, a project to be financed from the national lottery. Fidel Castro wanted in this way to show that there were other ways of getting houses built without counting on the cooperation of the capitalists.⁷⁾

III.2 Socialist Upsurge in the Countryside

By far the most important reform during the first year was the Agrarian Reform of 17 May. This reform has been extensively discussed by many authors and here just the main features will be summarized.⁸⁾

The Agrarian Reform Law had already been drafted by the 26th of July Movement in Sierra Maestra in October 1958, three months before the fall of Batista. The basic purpose of the reform was a radical transformation of ownership as a means of accelerating economic growth and raising the level of living of the peasants and the rural workers. The plantation system practiced in Cuba had established a form of farming that was based on very primitive techniques, coupled with the abundant use of cheap labour. The Agrarian Reform therefore was designed to convert the land into the property of those working on it, to take over the unproductive farms, particularly cattle estates, and organize them into People's Farms. The expropriated sugar plantations would be converted into Cane Cooperatives as an intermediate and provisional solution.⁹⁾

The Reform furthermore set a maximum limit of 402 hectares (30 caballerías) for land ownership, this could sometimes be raised for cattle farming to 1 340 hectares. Appro

priated land was to be compensated in the form of Agrarian Reform Bonds, redeemable within a period of 20 years and with an annual interest of 4.5 percent.¹⁰⁾ A good sized plot of 27 hectares (2 caballerías) was fixed as the "vital minimum" for a family of five people and this land was distributed free, and the farmer had the right to buy another 40 hectares. It has been estimated that some 100 000 "poor peasants" benefitted from this provision of the Reform.¹¹⁾

The expropriations and distribution of land started at a slow pace, and ten months after the proclamation of the reform only 850 000 hectares (or just some 13 percent of the expropriable area - see Table III.1) had been expropriated and only 40 200 hectares had been distributed to 6 000 beneficiaries.

Table III.1 Land Tenure in Cuba at the Beginning of 1959*

	Area		Farms		Owners	
	Hectares	%	Hectares	%	Hectares	%
Up to 5 caballerías (67.1 has)	628 673	7.4	28 735	68.3	20 229	66.1
Between 5 and 30 caballerías (67.1 and 402.6 has)	1 641 440	19.4	9 752	23.2	7 485	24.5
More than 30 caballerías (402.6 has)	6 252 163	73.3	3 602	8.5	2 873	9.4
Total	8 522 276	100.0	42 089	100.0	30 587	100.0

* = in accordance with declarations given by the owners.

Source: Chonchol (1963), p. 75.

At this rate, it would have taken twenty years to satisfy the needs of some 150 000 potential beneficiaries.¹²⁾ At the beginning of 1960 the rhythm of expropriation and confiscation (of property falling under a special decree on Recuperation of Ill-Gained Wealth¹³⁾) accelerated and in one week in January alone more than 600 000 hectares were confiscated.¹⁴⁾

The sugar farms (including the colonos) had owned or administered 2.5 million hectares of land in 1959, but only 1.3 million hectares were actually cultivated with sugar, and the rest were kept in reserve, or used for extensive cattle farming¹⁵⁾. No less than 70 percent of the sugar area, and 20 percent of total farm land, was controlled by 22 large latifundia, of which 13 were US-owned and 9 owned by Cubans or nationalized Cubans.

The real upsurge in the countryside came in the summer and autumn of 1960, and no doubt the growing dispute with the United States was one of the major driving forces behind it. The definitive clash started with oil, however, not sugar. The Americans, British and Dutch had built refineries in Cuba in order to process crude oil from their properties in Venezuela, paying what the Cubans considered to be inflated prices. Soviet oil could be obtained at lower world market prices. The petroleum companies were about to accept to refine Soviet oil although under protest, but the Eisenhower government told them to reject the plan - against US Ambassador Bonsal's desire and without his knowledge.¹⁶⁾ Cuba cannot exist without importing virtually all her oil and the blackmail by the oil companies was a direct challenge to the authority of the Revolutionary Government. Fidel Castro and Che Guevara, at that time President of the National Bank

and perhaps the most implacable adversary of the oil companies, did not yield one inch from their position, and on 29 June the refineries were "intervened" in and Cuba in one stroke became totally dependent on Soviet oil and gasoline. The US reaction was quick. On 6 July 1960, President Eisenhower retaliated by suspending Cuba's remaining sugar quota imports for 1960.

The dispute over the Soviet oil was no doubt a turning point in the relations between Cuba and its powerful neighbour. It would be futile to speculate whether the Cuban Revolution would have taken another course, had the US policy been more flexible and wiser. One fact is, however, that the Revolution had by that time not yet been openly at least, of a socialist character, although the terms of the game with the bourgeois opposition had been clearly spelled out. Che Guevara told an American newsreporter as late as in November 1960 that

"what lies ahead depends greatly on the United States. With the exception of our Agrarian Reform, which the people of Cuba desired and initiated themselves, all of our radical measures have been a direct response to direct aggressions by powerful monopolists, of which your country is the chief exponent. US pressure on Cuba has made necessary the 'radicalization' of the Revolution. To know how much further Cuba will go, it will be easier to ask the US Government how far it plans to go."¹⁷⁾

And the retaliation by the United States, indeed, led to a wave of nationalizations, starting with Law 851 of 6 August whereby the lion's share of United States investments in Cuba was seized, including all sugar mills and the oil refineries.¹⁸⁾ Through the Decree of 17 September the US-owned banks were nationalized, and, finally, on 13 October a new law (890) was proclaimed whereby 287

larger companies, foreign as well as national, were expropriated or confiscated, of which 105 were sugar mills, 18 distilleries, 16 rice mills and 61 textiles and garment plants.¹⁹⁾

Washington's answer to the Cuban "October Revolution"²⁰⁾ came just a week later when a trade embargo was placed on everything except non-subsidized foodstuffs and medical supplies.

Within a few months even those exceptions were banned²¹⁾ and in retaliation the Cubans also nationalized the remaining US properties including the Havana Hilton, the Nicaro Nickel Plant, Coca Cola, the department stores Sears, Woolworth and many other companies. Although the surge of nationalization began as a retaliation against the United States, soon other foreign- and Cuban-owned property was also affected. By early 1961, 75 percent of Cuban industry and 30 percent of its land had been collectivized.²²⁾ The embargo was still in force by the end of the 1970s even if there were some frustrated attempts at US-Cuban rapprochement during the Carter regime.²³⁾

After the "October Revolution" of 1960 it was becoming quite clear that the revolution had entered into a socialist phase and on 15 April, 1961, just two days before the CIA sponsored Bay of Pigs invasion, Fidel Castro for the first time referred to the Cuban Revolution as a "socialist revolution carried out under the noses of the Yankees".²⁴⁾ On the morrow of the aborted invasion - "the first defeat of US imperialism in the Americas" as the Cubans call it - large areas of land owned by "counter-revolutionaries" were confiscated in accordance with an amendment to Article 24 of the Constitution which allowed the confiscation of property of persons who left the country or who carried out activities judged to be counter-revolutionary.²⁵⁾

It was no longer so much an agrarian reform as an agrarian revolution. The situation as of May 1961 is summed up in Table III.2. If "voluntary sales" and "donations" to INRA (the Agrarian Reform Institute) are added to the various decrees of confiscation, we find that only 1.2 million hectares of the 4.4 million hectares of land affected, or less than one third, were affected as a result of the Agrarian Reform Law of 1959.

Table III.2 Land Affected in Cuba - As of May 1961

	<u>Area in Hectares</u>	<u>%</u>
Agrarian Reform Law	1 199 184	27.0
Recuperation of Ill-Gained Wealth Law	163 214	3.7
Donations to INRA	322 590	7.3
Voluntary sales and Article 24	581 757	13.1
Nationalization Law (No 851)	1 261 587	28.4
Nationalization Law (No 890)	910 547	20.5
Total	4 438 879	100.0

Source: Gutelman (1967), p. 57.

III.3 Mounting Pressures Against Resources

During the first half of 1961 the revolutionary spirit was high in Cuba and the optimism about sustained economic growth was unaffected. The revolution had just given a mortal blow to the enemy abroad and the counter-revolution on the island and a vigorous literacy campaign was in full swing. In the spring, the country had also celebrated the ending of the first people's zafra with a harvest of 6.2

million tons raw sugar, the largest since the record harvest of 1952. The wave of nationalizations in the autumn of 1960 had created the base for a planned and rational industrialization of the country, and the industrial department of INRA was transformed into the new Ministry of Industries with Che Guevara as its first Minister.

One reason for the optimism were the relatively good economic results during the first two years. In contrast with other revolutions such as the Russian and the Chinese, there was an increase in output in most branches just after the Revolution. But the increases were probably more modest than first thought by the Government. The Mexican economist Juan Noyola, adviser to the Revolutionary Government, in an enthusiastic article on the impact of the revolution on economic growth, among other things claimed that Cuba had launched an agrarian reform which was unique in the world since it was the first time such a reform had not led to decreasing production but rather agricultural output had increased as a result of the reform.²⁶⁾ Appendix Table 6 at first glance also gives some credit to Noyola's claim, with sugar increasing by 5.1 percent and non-sugar agriculture by 4.2 percent in 1959.²⁷⁾ But Felipe Pazos retorted that Noyola's optimism was based only on the output figures for 1959 by which time the effects of the agrarian reform could hardly have made themselves felt.²⁸⁾

On this issue at least he was proved to be right. The confiscation of cattle farms in early 1960 no doubt had some very serious effects with much too many cattle being slaughtered. The Chilean adviser to INRA, Jacques Chonchol, has estimated that some 800 thousand bovine cattle were slaughtered in 1958 (out of an estimated stock of 6 million). During 1959 this figure increased to some 950 thousand and

during 1960 to about 1.1 million head . This meant that slaughtering increased by 19 percent in 1959 and by another 16 percent in 1960, thus seriously affecting the reserves of cattle. There were two reasons for this decapitalization.

First, there was a rapidly increasing demand for beef as an effect of the redistribution of income in favour of the poor that took place in those years (see further Chapter V); and second, that there were no limits set for meeting this demand. Thus, INRA in May 1960 claimed that it was regularly satisfying the demand for beef in Havana "in spite of the fact that consumption has increased up to 60 percent with respect to 1958"²⁹⁾, and Pazos observed that "the rise in the real income of the working class should have brought an increase in the consumption of beef of not less than 50 percent".³⁰⁾

For some time the government did not worry too much since it was thought that there were immense, underutilized reserves in agriculture. Thus, for instance, Noyola claimed that

"there has (in the case of Cuba) not been a reduction but an increase in the cattle stock and a still more considerable increase in the production of beef and milk as a result of a better utilization of the cattle herds" (*italics mine*).³¹⁾

Not even such sober observers as Huberman and Sweezy had any doubts about the brilliant future of Cuban agriculture, writing (in 1960)

"that there could be no better evidence than this (the currently maturing supply of beef cattle) that (1) the Revolution has already transformed the standard of living of the Cuban masses and, (2) this new and higher standard of living has come to stay".³²⁾

This is pointed out here not in order to embarrass early observers of the Cuban Revolution for having been mistaken. It is important however, to stress that the Cuban leaders were not alone in their optimistic projections during the early 1960s. Thus, for instance, the French agronomist René Dumont, one of the first advisers to the revolutionary government, and later one of the most bitter critics of the regime, exclaimed in September 1960 that

"underproduction was such, before the Revolution, that Cuban agriculture cannot but advance, even if errors are still committed. One can now say that the Cuban Revolution is in the process of catching up on the economic plane with the very high level it had already attained on the political plane"
(underlining in the original)³³).

Cultivated with the same intensity as South China, the island would be able to feed a population of 50 million, according to Dumont.³⁴) And no less optimistic was Charles Bettelheim, who in a memorandum to the government, after finishing his mission in September 1960, wrote:

"Cuba is a country with absolutely exceptional agricultural possibilities. Studies made by specialists in agriculture and livestock show that within a relatively few years (generally from 10 to 12), it will be possible to multiply the production of many commodities by a factor of 3.4.5 or even more, without any great investment effort (underlining mine). This is an unprecedented situation. All the other countries that have entered the road of planning have had to make great efforts to raise their agricultural output to a much more modest degree - whether because this increase could not be realized without prior important investments (as in the Soviet Union) or whether because it demanded much labour and a tremendous organiza-

tional effort (as in China). In Cuba, on the other hand, the system of large rural property and the domination of foreign capital have produced an immense underutilization of the relevant means of production. The latter could therefore be brought into operation immediately, or almost immediately by essentially political and technical means".³⁵⁾

No wonder that this euphoria spread to the Cuban leadership! The Polish economist Michal Kalecki sketched a Five Year Plan for the period 1961-1965, in December 1960 in the wake of the October nationalizations.³⁶⁾ He made a series of optimistic projections that were based on the expected growth of the internal market as a result of population growth and anticipated increases in per capita income, and the Plan was based on demand conditions exclusively, disregarding realistic supply conditions. Kalecki projected an annual growth rate of the gross material product of 13 percent and per capita consumption was expected to increase by 7.5 percent a year. Kalecki's estimates were based on the prerequisite that sugar exports should reach 9.4 million tons by 1965, which, incidentally, was the same as the target figure for 1965, set by the US Department of Commerce report of 1956, earlier referred to.³⁷⁾

But the mounting pressures against resources soon began to be felt not only with respect to beef production. In the spring of 1961, people began to notice that some goods such as toothpaste, soft drinks and beer were at times not available but it was thought that the shortages were limited and temporary.³⁸⁾ In the early summer, shortages of basic foodstuffs suddenly arose and this first eruption of serious economic difficulty came as a shock.³⁹⁾ But the shock apparently did not perturb the basic optimism of the revolutionary leadership. In August

1961, Che Guevara told an OAS (Organization of American States) meeting in Punta del Este (Uruguay) that Cuba was counting on a per capita growth of 10 percent per year, thus challenging the representatives from the other American states. And Guevara's confidence in the bright future for Cuba seemed to know no limits:

"What does Cuba expect in 1980? Well, a net income per capita of some 3 000 dollars, or more than the actual per capita income of the United States. And if you do not believe me, alright. We are here to challenge you, gentlemen. If you just leave us in peace, if you let us develop and in 20 years let us come back, and we shall see if the chant of the siren was that of revolutionary Cuba or not. But we announce, responsibly, this annual growth rate."⁴⁰⁾

This general optimism also permeated the debates at the "National Production Conference", organized jointly by the Government and ORI (Integrated Revolutionary Organizations - the embryo of the Communist Party, officially launched in 1964) which took place at the end of August, just some weeks after Che Guevara's return from Punta del Este. Regino Boti, head of the newly created Planning Office, JUCEPLAN, and one of the first speakers, presented the 1962-1965 Plan with growth projections of total material production "at a rate of not less than 10 percent (per year) and probably not more than 15.5 percent."⁴¹⁾

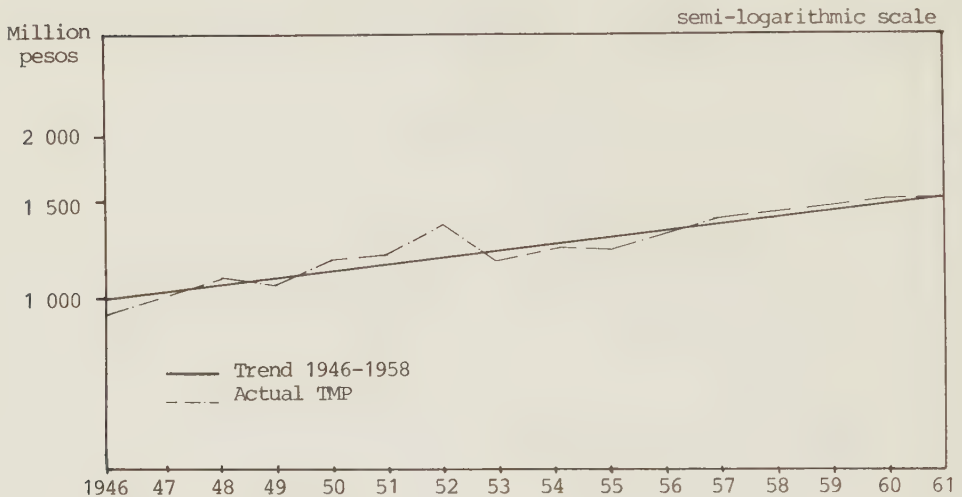
These growth targets are perhaps even more surprising considering that the conference was actually convened in order to discuss the shortages that had arisen during the spring and summer and what should be done about them. It is true that most of the speakers seemed to be aware of these shortages and Fidel Castro' admitted that

"we have problems of supply...(but) they are fundamentally due to the fact that the purchasing power of our people is 500 million pesos higher than before the triumph of the revolution... The problem to resolve is how, with the resources at our disposal, to satisfy the fundamental demands of the people."42)

But although everybody seemed to be aware of the limits of resources available, nobody questioned the growth rates. There was a basic assumption that rapid socialization of the means of production coupled with sophisticated planning techniques would be a sufficient panacea to the problems. Probably behind this assumption was also the widely spread idea that there were almost endless untapped reserves in both agriculture and industry. But even if it were true that idle capacity in some branches of industry was as large as 60 percent as claimed⁴³⁾, it is obvious that sooner or later (and probably sooner) there would be bottlenecks ahead.

As a matter of fact, and as demonstrated in Figure III.1, simple extrapolations of Total Material Production based on the 1946-1958 trend, yield figures that are surprisingly close to the actual volume of output reached in the years 1959-1961, with exception for the year 1959 when actual output slightly exceeded extrapolated output. All this would hence tend to refute the argument that there was large unused or underutilized capacity in the Cuban economy on the eve of the Revolution. What probably happened was that there were large stocks in the stores waiting for new consumers with freshly acquired purchasing power. And this blossoming market for consumer goods lulled the government into false expectations about the future. The problem waiting around the corner was what to do when there were no longer any stocks on the shelves and unused capacity had been tapped in most areas.

Figure III.1 Total Material Production 1946-1961, Actual and Trend Projection (Based on 1946-1958 Trend)



Source: Appendix Tables 5A & 5B.

III.4 The 'Goods Famine' of 1962-1963 and the 'Great Debate'

The Four Year Plan (1962-1965) presented by Regino Boti was an outline of what has later been denominated the 'First Growth Strategy' after the Revolution. At the center of this strategy was a rapid industrialization through a wide range of import-substituting industries including metallurgy, chemical products, machinery and even an automobile assembly plant. Most of the equipment for these new plants, investments totaling 620 million pesos, were to be supplied by the Soviet

Union, the German Democratic Republic and Czechoslovakia.⁴⁵⁾ Nowhere in the plan was it envisaged that there might be curtailment of consumption via rationing as a consequence of this high investment rate, because there was a basic underlying prerequisite that was more or less taken for granted: the rapid expansion of non-sugar agriculture would lead to self-sufficiency in food production and would eliminate queuing and problems of food supply by the end of 1962.⁴⁶⁾

1962, officially baptized the "Year of Planning", was the first year of this optimistic plan. The start could hardly have been worse. There was a severe drought in the spring of 1962 and much of the sugar harvest was lost. At the same time the supply of food steadily dwindled and already in March 1962 it was necessary to introduce general food rationing. However, rationing was probably the only sensible solution unless the whole process of redistribution were to have been reversed. Food rationing did not necessarily mean that people at large were worse fed than before. The Cuban agricultural worker no doubt had a better diet in 1962 than before the Revolution and large sectors of the urban population were also eating better. All children below seven were getting a litre of milk per day, and several million people who had seldom eaten meat or eggs were now getting a regular ration (see further Chapter V). But for the middle and upper classes and the better-paid workers in the towns, the rationing undoubtedly meant less food than they had been used to.⁴⁷⁾

The years 1962 and 1963 turned out to be the worst since the Revolution. Total Material Production decreased by 2.4 percent in 1962 and by another 3.3 percent in 1963 (see Appendix Table 8). The situation in agriculture was

disastrous with output falling by 11.3 percent in 1962 and by another 5.8 percent in 1963. But even the industrial sector, expected to be the spearhead in the Four Year Plan, showed a disappointing 0.4 percent growth in 1962 and a decline of 1.5 percent in 1963. It became more and more obvious that the road ahead would be much more burdensome than thought at the outset. But it was not only the question of the misjudgement of available resources. The embargo policy by the United States was being seriously felt in those years, especially when it was discovered that the deliveries of complete plants from the socialist countries would be delayed for at least some years.⁴⁸⁾ In October 1962, during the height of political tension as a result of the Missile Crisis which led the world to the brink of disaster, the embargo was extended to an outright naval blockade of the island.⁴⁹⁾

The final blow to the bold plans came when in the fall of 1962 the preliminary balance of payments figures for 1962 indicated a severe deficit. There had been a trade surplus of 38 million dollars in 1960, the surplus had turned into a small deficit of 14 million dollars in 1961 and in 1962 the trade deficit was 170 million dollars.⁵⁰⁾ The deficit mercilessly revealed the limitation of the plan. Eddy Boorstein says that "the balance of payments deficit culminated the process by which the Cuban economy began to press against the limits of its resources."⁵¹⁾ It became clear that choices would have to be made and a pressing need for deciding priorities began to be felt.

When Che Guevara in July 1963 spoke at a seminary on planning organized in Argelia, he was much less optimistic than at the OAS meeting two years earlier. He blamed much

of the frustrating economic performance on the dependency inherited from the past, on the low level of skills and the lack of technological advance, but he also delivered an honest self-criticism.

"We did not base our arguments on statistical facts, nor on historical experience. We dealt with nature in a subjective manner, as if by talking to it we could persuade it, and we discarded other experiences. When, for instance, we were told that there is no country in the world which could develop its agriculture at an annual rate of growth of 20 percent, we said: we shall do it. But we did not. When we considered the question of annual growth of our country we did not first check what we had to start with, what we could spend and what would be left to us, but we said: Calculate a 15 percent rate of growth and then we shall see what we have to do. To make global growth rate calculations is easy, and the task even seems easy when we consider what we have to do in order to grow by 15 percent, but for a monocultivating country, with all the problems I have told you, to grow by 15 percent was simply ridiculous."52)

This was the atmosphere when the so-called "Great Debate" started in Cuba. Although the debate as such came to center around moral versus material incentives, centralization versus decentralization and the functioning of the law of value in a transition economy, implicit in the discussion were the commodity shortages that had arisen in 1961 and with growing intensity in the following two years. The debate took place in 1963-1965 in the form of articles, replies and rebuttals in periodicals such as Cuba Socialista, Nuestra Industria and Comercio Exterior.

All those participating in the debate agreed that the road of industrialization was much more complicated than

envisaged by the 1962-1965 Plan which more resembled the famous Feldman models of the late 1920s in the Soviet Union⁵³⁾ than an operational medium-term plan. The participants also agreed that agriculture would have to be the pillar upon which to build the future industrialization of the island. Or as the Chinese said at about the same time, "agriculture is the base and industry the leading sector of the economy".⁵⁴⁾ The issue that emerged was another one. How can one determine value when there is a disturbing discrepancy between available resources and needs? In a market economy the relative scarcity of commodities determines their price but this would be inexcusable in a socialist society and that is why there was complete consensus on the correctness of rationing basic consumer goods.

But if prices are administered - through the Plan - does this mean that the law of value ceases to function? Comandante Alberto Mora, at the time Minister of Foreign Trade, unleashed the debate in June 1963 by criticizing "some comrades" for suggesting that the law of value does not function in the state sector. That Mora was addressing himself to the Minister of Industry, Che Guevara, among others, was no secret. Mora said that the law of value does, indeed, continue to function in a socialist economy. "It is precisely in the conscious decision of the planning authority (Juceplan) where value appears more clearly as an economic criterion, as a regulator of production."⁵⁵⁾ And the law of value continues to function even in the state sector, which in Cuba in no way constitutes "a single large enterprise" as claimed by Che Guevara. "Value as a category will cease to operate (have a meaning) only when the development of the productive forces is such that enough resources are produced to satisfy socially recognized needs."⁵⁶⁾

The most profound criticism of Che's theses came from Charles Bettelheim according to whom, the role of the law of value in the commodity categories within the socialist sector is due to the insufficient level of development of the productive forces. This point raised by Bettelheim was of great importance because in a situation of commodity shortage, a situation in which Cuba just found itself, there seemed to be only two roads, either a tactical retreat by giving more stimulation to the private sector (and hence profits and material incentives) or continue the road of socialization of the remaining parts of the economy in an attempt to rapidly increase the level of the forces of production. Bettelheim seemed to reverse the argument by saying that the forms of property, or relations of production, cannot assume a higher level than that allowed by the level of the productive force. Implicit in Bettelheim's argument was that state enterprises should maintain a certain freedom of action (through self-finance for instance) and that the "system of material incentives" could not be arbitrarily abolished on moral grounds.⁵⁷⁾

Surprisingly, none of the participants in the debate made any reference to the rich experience of the Soviet Union in this field in the 1920s.⁵⁸⁾ The so-called "industrialization debate" raged in the Soviet Union, following the "goods famine" of 1925. There, like in Cuba forty years later, at the root was the problem of accumulation in a transition economy. The "goods famine" had been preceded by the so-called "scissors crisis"⁵⁹⁾ when the terms of trade between the town and the village were turning increasingly against the latter in 1923.⁶⁰⁾ In 1924 the Soviet government decided to rectify this situation and the "scissors" also began to "close" in that year. But then came the shortages of commodities or the

"goods famine" of 1925. The discussion that followed centered around the nature of the shortages (just like in Cuba at the National Production Conference in August 1961). During the NEP period⁶¹⁾ output had expanded thanks to large unused or underutilized resources but by the mid-1920s it was clear to everyone that the capacity reserves were exhausted and that any further increase in the level of output was predicated on a still greater increase in investment in fixed capital.

In the Soviet Union two tendencies crystallized in these debates. One, led by Trotsky, Preobrazhenski and others, advocated a rapid industrialization at the expense of the kulak peasantry (implying a forced collectivization drive in agriculture, a policy later, ironically, effectuated by Stalin). Another group on the contrary argued that raising agricultural output and light industry should be given priority in the short run. Lev Shanin, an exponent for this group, said that "we must definitely realize that the heavy industries can be developed only on the basis of extensive preliminary development of light industry" and that "our economic strategy should involve, first, export of agricultural commodities, and second, investment of capital in the branches which serve the export".⁶²⁾

These ideas of export-led growth, suggested by Shanin, are surprisingly similar to the new growth strategy hammered out in Cuba during 1962 and 1963. Nobody seemed to question any longer that a renewed reliance on sugar to provide the necessary foreign exchange for the importation of capital goods would be the best road for accumulation. The focus of the debate in Cuba was rather on the implications of this strategy than on the strategy itself. Could accumulation take place without a heavy

renewed reliance on material incentives⁶³⁾ and what should be the role of the state in this accumulation? The position of Che Guevara was clear. First of all he stood up in defense of the budgetary system of financing state enterprises, used within the Ministry of Industry, in contrast with the self-finance, or self-management, system practiced by INRA (headed by Carlos Rafael Rodriguez) and by the Ministry of Foreign Trade (headed by Alberto Mora), following the practices in the Soviet Union and Eastern Europe. Secondly, and even more important he made clear that, "while not denying the objective need for material incentives, we maintain that the development of consciousness does more for development of production in a relatively short time than material incentives do."⁶⁴⁾

The outcome of this debate was the adoption of what Mesa-Lago and others call the "Sino-Guevara line of thinking".⁶⁵⁾ The allusion that Guevara was inspired by the Chinese no doubt stems from the fact that there was a similar debate going on in China at the time, about the consequences of the economic crisis that had emerged in the wake of the Great Leap Forward (1958-1959).⁶⁶⁾ There, like in Cuba, the debate centered around the role of profits and on moral versus material incentives. But it differed from Cuba in that the debate in China was also directed to attack the "revisionists" within the party, notably Liu Shao-chi, and indirectly also against the "revisionist clique" in Moscow and the Liberman followers in the Soviet Union.⁶⁷⁾ Although neither Guevara, nor Castro, who later came out in unconditional support of Che's stand, could hardly have been unaware of the discussions in China, there is no evidence that they were actually influenced by the Chinese. Many of the participants in the debate did mention however, the Liberman school of thought, but only en passant.

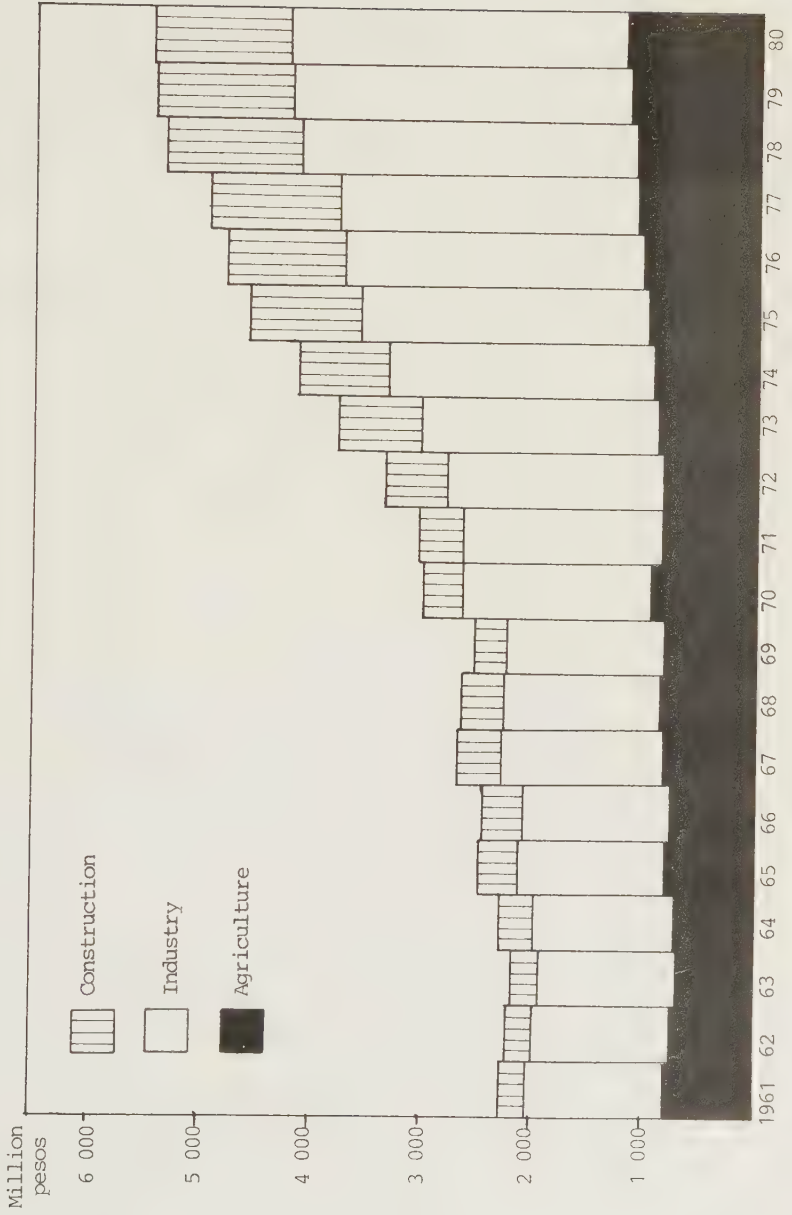
III.5 The Revolutionary Offensive and The Ten Million Zafra

The system implemented between 1966 and 1970 was a radical extension of Guevara's system of central budgeting and Cuba moved steadily away from the market. Free services were extended, for instance for local telephone calls, and in 1966 Fidel Castro announced that "starting in 1970, rent for housing will be practically nonexistent."⁶⁸⁾ By offering gradually more free services it was thought that money wages would progressively lose their importance and thus make the reliance on moral incentives and voluntary labour easier to accept. The priority of moral over material incentives was officially proclaimed at the Twelfth Workers' Congress in August 1966.⁶⁹⁾

In 1967 there was again an atmosphere of cautious optimism in Cuba. There were reasons to believe that the new orientation of economic policy was yielding fruits. There had been a recovery, although not more, in a number of sectors (see Figure III.2 and Appendix Table 7).

Rightly or wrongly, it was considered that the major obstacles for the development of the productive forces were the remaining bourgeois or petty-bourgeois classes still left with some economic power. In October 1963 there had been a second Agrarian Reform which virtually eliminated the remnants of the rural bourgeoisie. Or as it was declared in the preamble of the reform, "the existence of a rural bourgeoisie is incompatible with the interests and objectives of the Socialist Revolution".⁷⁰⁾ Through this reform all farm land between 5 and 30 caballerías (67 and 403 hectares) was

Figure III.2 Growth and Composition of Total Material Production, 1961-1980



Source: Appendix Tables 7 & 9.

taken over by the state, affecting about 19 percent of the land, and about 24 percent of the owners. The small peasantry had already in 1961 organized themselves in the Small Farmers' Association (ANAP) representing about 150 000 farmers of which about two thirds had been allotted land after the first Agrarian Reform of 1959.⁷¹⁾ The second Agrarian Reform gave explicit guarantees that the land of the small peasantry would not be expropriated.⁷²⁾

The immediate economic results of the accelerated collectivization of land were not so good, however. The output of non-sugar agriculture continued to decrease in both 1964 and 1965 (see Appendix Table 7. and especially, the situation for rice production was disastrous. In 1966 the situation of the supply of rice, a basic ingredient in the Cuban diet, became critical when the deliveries promised by China failed to materialize in an apparent attempt by the Chinese to put pressure on the Cuban government to break its links with the Soviet Union. Production of hulled rice declined by more than half between 1963 and 1966 and started to recuperate only in the 1970s.⁷³⁾ But another reason for the decline in agricultural production was the reorientation towards sugar after 1964. The area planted with sugar more than doubled. between 1963 and 1968, and in the case of state farms the increase was more than three times.⁷⁴⁾

The Cuban government had in late 1963 fixed a target of 10 million tons of raw sugar for the 1969/1970 zafra, a 150 percent increase over 1963. In 1965 a plan was set for the gradual increase of sugar production to be facilitated by an agreement with the Soviet Union in 1964 which arranged for a gradual enlargement of Soviet purchases at a fixed price of 6.11 cents per pound, substantially above the world market price at the time.⁷⁵⁾

The plan also envisaged an amplification of installed capacity, the replacement of obsolete equipment, the introduction of new sowing techniques and the gradual mechanization of the harvest.⁷⁶⁾

In 1967 there was as mentioned an atmosphere of optimism in Cuba. The economy showed signs of recovery in most fields (see Figure III.2) and sugar production reached its highest level since the post-revolutionary record of 1961, although the figure was already 17 per cent below the planned target for the year.⁷⁷⁾ There were, however, still signs of commodity shortages and the black market was flourishing. In an attempt to eliminate this market the government in March 1968 launched a "revolutionary offensive" whereby the state nationalized 55 600 small private business which accounted for approximately one third of retail trade sales.⁷⁸⁾ In defence of the nationalizations Fidel Castro said that "we did not make a revolution in order to establish the right to trade" and on May Day 1968, Raúl Castro explained the offensive in these terms,

"To say that the small merchants lived better because they were influenced by material incentives is true. And for that very reason we reject material incentives. We do not want a small merchant mentality for our people."⁷⁹⁾

Through this drastic measure the state had in less than ten years collectivized almost the whole economy save for about one third of agriculture. This rapid process is shown in Table III.3. The figures in the table indicate that this process also continued in the 1970s and this is true at least until 1980 when private services such as hairdressing, laundry and repair services were again allowed although on a very restricted basis.⁸⁰⁾

The rapid collectivization of the means of production has, however, a parallel in history. During the forced collectivization campaign in the Soviet Union between 1924 and 1936 the private sector share of production fell from 97.8 to 2.3 percent in agriculture, from 20 to 0.2 percent in industry and from 50 to 0 percent in trade.⁸¹⁾

Table III.3 Collectivization of ownership of means of production and services in Cuba, 1961-1977
(percent)

<u>Sector</u>	<u>1961</u>	<u>1963</u>	<u>1968</u>	<u>1977</u>
Agriculture	37	70	70	79
Industry	85	95	100	100
Construction	80	98	100	100
Transportation	92	95	98	98
Retail Trade	52	75	100	100
Wholesale & foreign trade	100	100	100	100
Banking	100	100	100	100
Education	100	100	100	100

Source: Mesa-Lago (1981), Table 1, p. 15.

That the "revolutionary offensive" in Cuba was a political as well as an economic mistake is today admitted by the leadership of the Revolution.⁸²⁾ The measure of expropriating the relatively small private service did not eliminate the black market. On the contrary, it gained in importance, at the same time as people with excess purchasing power were incriminated for buying illegal goods and services.

One of the most serious bottlenecks for achieving the 10 million zafra goal in 1970 was considered to be the acute shortage of manpower. The Cuban sugar industry was technically backward before the Revolution. Yields per hectare were among the lowest in the Western hemisphere⁸³⁾, and mechanization of planting as well as harvesting and loading was virtually non-existent.⁸⁴⁾ The Prospective Sugar Plan was elaborated without a previous technical study of feasibility and opportunity costs. Knowing all the limitations it is in retrospect easy to see that the Plan could not but fail. Overall output in the year 1965 was 25 percent below the target.⁸⁵⁾ It is true that the 1970 figure of 8.5 million tons represented a record high in the sugar history of Cuba but it was produced at too high a cost and with a waste of resources.

Most of the prerequisites for the fulfillment of the Plan; explicitly pronounced or implicitly assumed, never materialized. Of the projected investment of one billion pesos for modernizing the sugar industry, only 40 percent were actually invested, only the one third of the planned area for irrigation was completed and also the application of fertilizers fell short of the target set.⁸⁶⁾ Most serious, however, was the failure of mechanizing the harvest. There was a remarkable success in mechanizing the lifting/loading phase of the harvest (increasing from 20 percent in 1964 to 85 percent in 1970)⁸⁷⁾ but the goal of rapidly mechanizing the most labour-intensive phase, cane-cutting, failed although there were frustrating attempts to introduce Soviet imported harvesters in the mid-1960s.⁸⁸⁾

The failure of mechanizing was crucial. The number of

professional cane-cutters had drastically decreased after the Revolution (from 370 000 in 1958 to some 80 000 in the 1970 zafra)⁸⁹⁾, and to make it even worse, the productivity of those remaining was estimated to have fallen by at least 20 percent. In order to make up for the deficit of harvesters and skilled cane-cutters several hundred thousands of often unexperienced volunteers had to be mobilized to achieve the sacred goal of 10 million tons. Not less than 350 000 cane-cutters participated in the zafra and sufficient cane was cut in order to produce the 10 million tons.⁹⁰⁾ The problem was just that the sugar content of the cane was too low, either because it had not ripened, that it had been cut too high, or because it was left too long on the ground before being collected. The latter was usually a result of the breakdown of the transportation system.

III.6 The Second Decade: Sustained Economic Growth

Following the disappointing growth performance of the 1960s and the frustrating "great leap forward" policy during the 1969/1970 zafra, there was a vigorous recuperation in the first half of the new decade, with an annual growth rate of 10.0 percent (1971-1975) (See Figure III.2, p. 77.

According to Mesa-Lago⁹¹⁾ this was a result of a more efficient organization, the pay-off of previous investment and the better allocation of capital. Also important factors were the steady outflow of trained personnel (managers, engineers, skilled workers), and the booming of sugar prices (see Table III.4 which contains some comparative indicators for the 1960s and the 1970s). Furthermore, the postponement of the Cuban debt to the Soviet Union in 1972, the provision of new Soviet credit lines and the relaxation of the embargo combined with substantial credits from many Western countries were other important factors.

Table III.4 Economic Performance Indicators, 1961-1980

	<u>1961-1965</u>	<u>1966-1970</u>	<u>1971-1975</u>	<u>1976-1980</u>
<u>Annual Growth Rates</u>				
TMP	2.1	3.3	10.0	3.7
Agriculture	-0.2	3.7	3.9	4.3
Construction	9.2	- 6.3	21.8	3.8
Industry 2	1.9	5.2	9.5	3.0
Capital Goods 4	3.7	6.1	11.2	3.6
Consumer Goods 4	0.7	4.4	7.1	2.4
Population	2.3	1.7	1.8	0.7
Civ. Employed				
Labour Force	2.4	4.6	2.3	4.3
Productivity* TMP	1.4	-1.3	8.2	1.1
Agriculture	2.3	na	3.8	6.3
Industry	-2.8	na	7.5	-2.9
Gross investments	17.2 1	-1.4	21.0	6.0
Material Production	26.8 1	-1.3	16.9	5.7
Non-Material Production & Services	-5.1 1	-2.3	38.4	6.8
<u>Average Sugar Prices</u> (US cents/pound)				
Agreement with USSR	5.30	6.11	14.86	37.87 ³
World Market	4.35	2.50	14.25	9.27 ³
<u>Cuban Terms of Trade</u> (1970=100)				
With USSR	98.2	98.3	147.5	207.7 ³
With Western Countries	170.3	73.1	197.6	139.8 ³

*) Value added divided by number employed.

1) 1962-1965; 2) Includes Mining & Electricity; 3) 1976-1979.

Sources: Output: Appendix Tables 4) Definitions explained in note 92.

Population & Labour Force: Appendix Tables 17 A & 17 B

Investment: SEV (1979); Sugar prices: Torres (1981) Table 4;

Terms of Trade: Torres (1981), Table 3.

The Cuban success story in terms of economic growth during the first half of the 1970s is primarily the result accelerated industrialization and notably the growth of the capital goods sector. The share of capital goods in total industrial output increased from 47 percent in 1970 to 54 percent in 1975.⁹²⁾ An important aspect of the expansion of capital goods is that it is the result of a planning effort to build up a domestic resource base around agriculture along the lines discussed earlier (p. 72). For instance, Cuba today has a modest but relatively important sector producing combine harvesters, fertilizers, pesticides, and other inputs for agriculture (see Appendix Tables 11-16). At the same time, there were efforts made to increase the line of by-products from sugar cane, like bagasse for the paper industry (instead of just using it as fuel) and methanol for the chemical industry.⁹³⁾ There have, however, been no plans to use pure alcohol from sugar (ethanol) as a substitute for gasoline, as is the current trend in Brazil.⁹⁴⁾

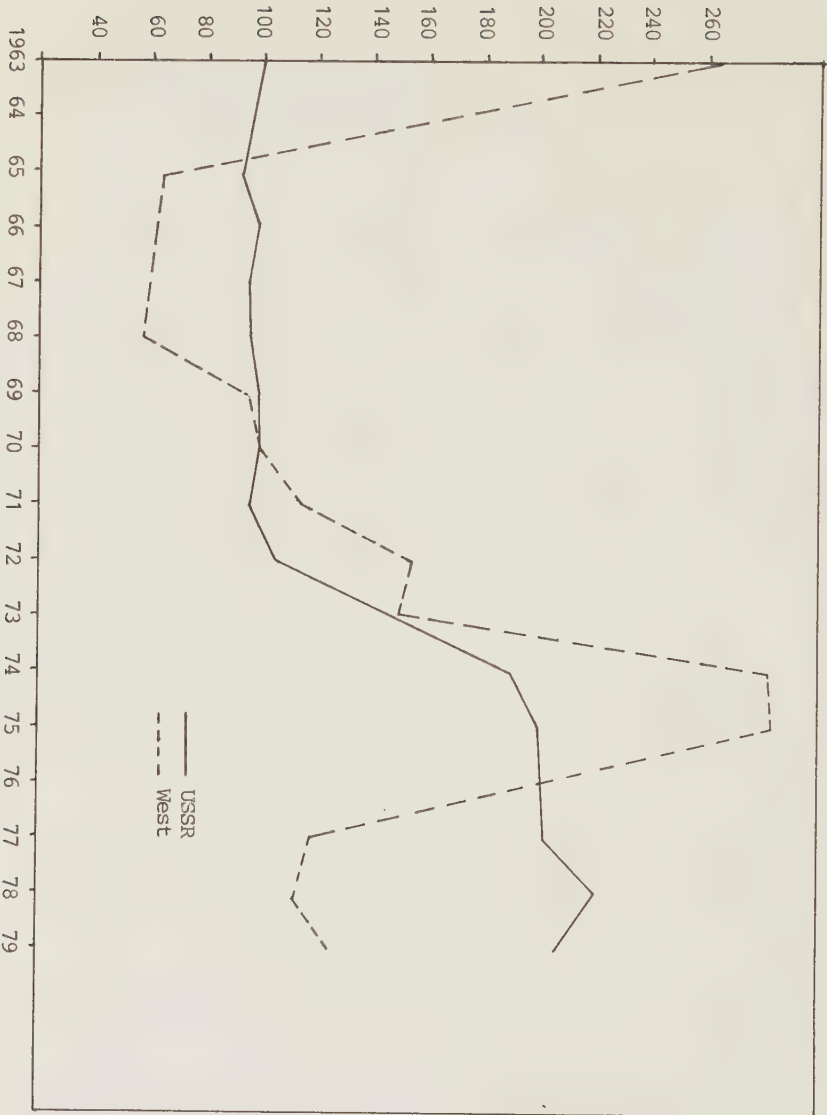
But the expansion of the capital goods sector is not only related to agriculture. Another Cuban success has been the rapid growth of fishing, from some 22 000 metric tons of catch before the Revolution to about 150 000 in the mid-1970s (see Appendix Table 18). Since the late 1960s Cuba has produced an increasing number of vessels for this increasingly important sector. Cuban shipyards had by 1975 built some 6 000 small and medium wood vessels, plus 400 ferrocement medium vessels, and 90 steel large vessels.⁹⁵⁾ There has also been an important expansion of fishmeal processing, cold storage and freezing facilities. Cuba has from having been a net importer of fish in 1958, become a net exporter and the seventh largest fishing nation in Latin America.⁹⁶⁾

Other important investments, which will be of great importance in the 1980s, are those that have gone into the expansion of nickel production - the export product with greatest potential for Cuba's economic diversification. Soviet aid for the modernization and expansion of the two existing plants was agreed upon in 1972 when the outstanding debt with the Soviet was renegotiated and new credit lines awarded (see above). These plants today produce about twice the levels reached prior to the Revolution but the goal had originally been to reach a level of 47 000 tons by 1980 but this objective has been postponed until 1983. There have been plans to build two, perhaps even three, more plants in the Moa Bay area with Soviet assistance and output is scheduled to increase to 69 000 tons by 1985 and 100 000 by 1990.⁹⁷⁾

Apparently, however, there have been problems with the technology supplied by the Soviets (the Cuban deposits are laterite ores with low nickel content and much more costly to process, because of high energy costs, than more common sulfide ores⁹⁸⁾).

The industrial growth during the first half of the 1970s is highly correlated with sugar prices and with the Cuban terms of trade position and import capacity in general (see Table III.4). The change in relation to the gloomy 1960s is conspicuous. Unfortunately for the Cubans, the favourable trend did not continue after 1975. Juceplan prepared three variants of the first Five Year Plan (1976-1980) to account for possible reverses of sugar prices. Since prices fell more than expected, twenty-two major investment projects had to be cancelled, most of which were to be financed with credit lines from the West.⁹⁹⁾ As so many times before, the Soviet Union had to come to the rescue of the Cubans and thanks to steadily improving terms of trade with the Russians, the

Figure III.3 Cuban Terms of Trade with the USSR and the West, 1963-1979 (1970 = 100)



Source: Torres (1981), Table 3.

trade balance with them was favourable for the first time since the early 1960s (see Figure III.3 and Table III.7) However, it is not only the fall in terms of trade with the West (30 percent lower during 1976-1979 than during 1971-1975) which explains the declining growth rates during the first plan. There were also important difficulties in agricultural and livestock production at the end of the period due to plagues and pests, such as sugar rust, tobacco blue mold and African swine fever.¹⁰⁰⁾

III.7 Mechanization of Sugar Production and Return to Material Incentives

One of the fundamental changes in the employment policy of the 1970s was that, for the first time, productivity took priority over employment creation.¹⁰¹⁾ In the 1960s open unemployment had fallen from 11.8 percent in 1960 (the figure was the same in 1958) to 1.3 percent in 1970. The full employment policy, however, led to new problems. Thus, quite a lot of people were employed in low productivity work places, the labour force tended to be rigidly immobile and at the same time investment tended to go more and more into capital intensive projects. This was natural since the problem envisaged in the 1960s was one of labour shortage rather than labour surplus.

As a result there was a drive to induce women to enter the labour force. Women have always constituted a large labour reserve in Cuba, as in most other parts of Latin America, but have not been motivated to work outside the home. Partly, this is due to traditional attitudes, partly, it is reflection of the already high

unemployment and underemployment rates. Another important reason for the slow integration of women into the work force in the 1960s was no doubt the lack of material incentives to do so, since there were simply no consumer goods to satisfy this potential increase in purchasing power.

In the mid-1970s the situation radically changed. First of all, the supply of labour gained momentum as a result of two phenomena: (a) the rapidly increase of young women who after completing primary or secondary education entered the labour force, (b) the effects of the "baby boom" of the early 1960s.¹⁰²⁾ The growth of the female labour force between 1972 and 1976 is quite outstanding (see Table III.5). In fact, the female workers increased by some 226 000 during these years, or by almost 50 percent, explaining over 75 percent of the new entries into the work force during that period.

Table III.5 Employment and Productivity Indicators,
1958 & 1970-1979

	<u>Open Unem-</u> <u>ployment</u> <u>Rate</u>	<u>Female Par-</u> <u>ticipation</u> <u>Rate</u>	<u>Number of</u> <u>Cane-Cut-</u> <u>ters (000)</u>	<u>Percent of</u> <u>harvest cut</u> <u>manually</u>	<u>Product-</u> <u>ivity of</u> <u>cane-cutters</u>
1958	11.8	13.1	370.0	100	157
1970	1.3	18.0	350.0	99	233
71	2.1	17.9	274.0	97	190
72	2.4	17.9	210.5	93	210
73	3.0	19.1	229.0	89	211
74	3.9	20.6	200.3	82	251
75	3.1	22.1	175.6	75	298
76	2.8	23.7	153.3	68	351
77	2.0	23.8	139.1	64	434
78	1.3	24.2	153.9	62	453
1979	2.0*	24.8*	126.4	58	578

*) Author's estimates

Source: Mesa-Lago (1981), Tables 30 & 32; Pollitt (1981), p. 8;
Edquist (1981), p. 80.

These increases in the supply of labour coincided with a drive to increase productivity in all fields, and especially in agriculture (compare Table III.4). Sugar continued to be the engine of the economy but a more rational policy was implemented.¹⁰³⁾ There was an attempt to introduce the Australian technique of burning the cane but the results were disappointing.¹⁰⁴⁾ On the other hand there has been a real breakthrough in mechanization of cane cutting (see Table III.5) and it is estimated that almost half of the cutting was mechanized in the 1980 zafra. At the beginning of the decade most of the mechanized cutting was done by imported Massey-Ferguson harvesters while by the end of the decade the Cuban-Soviet designed KTP-1 did most of the job.¹⁰⁵⁾ Both ploughing and lifting were completely mechanized in 1980.¹⁰⁶⁾ The technical transformation taking place in the Cuban sugar sector has led one expert in the field to state that it had by the end of the 1970s assumed characteristics more commonly associated with industrial activity - expressed in terms of equipment, labour-skills and productivity trends.¹⁰⁷⁾

The policies pursued in the 1970s meant, however, that there was a new conflict arising, between maintaining full employment and raising productivity. The Cuban leadership seems to have been well aware of the possibility of the reappearance of the spectre of unemployment in the near future, and Fidel Castro already in 1973 warned that "the time might come when we will have a headache finding jobs for all those who want to work."¹⁰⁸⁾ There is officially no unemployment in Cuba but the increase in the number of disponibles (temporarily laid off workers who while waiting for a new job assignment receive 70 percent of their most recent wage) is a symptom of the mounting difficulties of finding enough jobs.¹⁰⁹⁾

Another important aspect of change is the renewed reliance on material incentives and revitalization and democratization of the labour movement. Both issues were discussed at the Thirteenth Workers' Congress in November 1973. There was a redefinition of the role of trade union which, in the words of the Minister of Labour, Jorge Risquet, had been more "the bureau of the vanguard workers" than a genuine workers' movement.¹¹⁰⁾ At the congress the unions were reaffirmed as independent organizations of the working class, and the workers forced the adoption of a resolution which would allow them to have more direct participation in the planning process.¹¹¹⁾ Also the work quota system was changed by allowing for variation in remuneration according to productivity, that is, rewards were given to workers who produced beyond their quota.

Linked to the principle of reward according to work was the question of the supply of consumer goods. As long as there were no material incentives, there was no need to increase the output of consumer durables. If people were to be materially incited to produce more (and in the case of women to enter labour force) then, it was argued, there would also have to be consumer goods available to absorb this purchasing power. As a result, not only was there an increase in the supply of such goods, but a new so-called "parallel market" was also introduced where products outside the rationed quota could be bought at prices reflecting supply and demand.

III.8 Structural Changes and Dependency

Total Material Production in Cuba is estimated to have grown at an annual rate of 4.5 percent, or 2.9 percent per capita in the period 1961-1980, with an acceleration of the rate of growth during the last decade, or 6.4 percent and 5.1 percent, respectively. These growth rates compare very well with the pre-revolutionary rates and also with the post-war experience of most other countries in Latin America. What is even more important, however, is that this growth has been accompanied by structural changes in the economy. There can be no doubt that the Cuban economy is today much more diversified, less dependent on sugar and thus also less vulnerable than some twenty years ago. This change is witnessed in Table III.6 which shows sector shares of TMP by quinquennium during 1961-1980.

Table III.6 Structural Changes in the Cuban Economy, 1961-1980

<u>Sector shares of TMP (%)</u>	<u>Averages per Quinquennium</u>			
	1961-1965	1966-1970	1971-1975	1976-1980
Agriculture	33.3	31.9	23.9	22.1
of which:				
Sugar-cane	12.1	13.0	9.0	8.2
Industry	54.8	55.2	57.9	55.7
of which:				
Mechanical Industry	3.2	3.4	6.8	9.6
Sugar Industry	7.3	7.2	5.8	5.3
Construction	11.9	12.9	18.2	22.3
<u>TMP (million constant pesos)</u>	2310	2684	3788	5200
Output of Raw Sugar (000 MT)	5215	5902	5675	7193
Share of Sugar in TMP (%)	19.4	20.2	14.8	13.5
Gross Investments (million pesos)	753 ¹	854	1510	2651
Gross investments as percentage of:				
GSP	11.9 ¹	11.6	12.9	16.6
GMP	19.1 ¹	20.5	21.0 ²	n.a.
TMP	32.6 ¹	31.8	39.9	51.0

1. 1962-1965 2. 1971-1974

Sources: Table II.1 and Appendix Tables

The most significant change is that the value added of sugar, as a share of TMP, has fallen from 19 to 13.5 percent, while maintaining and even increasing the levels of sugar output. The industrial branch which has grown fastest is the mechanical industry, the share of which has increased from 3.2 to almost 10 percent. The most impressive growth is, however, recorded by the construction sector, almost doubling its share from 12 to 22 percent. This latter increase is also reflected in the rapid growth of gross investments, especially during the last decade, as seen in Table III.7. The investment ratio declined during the latter part of the 1960s reached its climax in the mid 1970s but has since then slightly declined again.

Another side of the picture however is that those investments have to a large extent been financed with long-term credits from abroad, especially from the Soviet Union but also from the West. It has been estimated that Cuba's outstanding debt in 1976 amounted to 6.2 billion dollars (of which 4.9 billion dollars to the Soviet Union alone¹¹²). The Cuban trade is today more dependent than ever on the Soviet Union (see Table III.7) and the trade balance would be even more disastrous had not the Soviet Union come to the rescue with benevolent terms of trade, both in terms of subsidised sugar prices and in terms of deliveries of oil below world market prices¹¹³.

There are indications that the Cubans would welcome a break in this seemingly perpetual dependence on trade with the Soviet Union. In 1976, when a thaw in US-Cuban relations was in sight, a high Cuban official in the Ministry of Foreign Trade told a US business group that a desirable distribution of future Cuban trade should be: 40 percent with socialist countries 30 percent with the United States,

Table III. 7 Cuba's Foreign Trade 1959-1979

Year	E x p o r t s				I m p o r t s					Trade Balance
	Total	Percentage shares			Total	Percentages shares				
		USSR	Sugar	Nickel		USSR	Food	Fuel	Cap.Goods	
1959	636	2	77	2	675	-	27	9	19	-39
1960	608	17	80	1	580	14	n.a.	n.a.	n.a.	-28
1961	626	49	85	6	639	41	n.a.	n.a.	n.a.	-13
1962	522	42	83	7	759	54	n.a.	n.a.	n.a.	-237
1963	545	30	87	6	867	53	24	9	14	-322
1964	714	39	88	5	1 019	40	24	9	14	-305
1965	691	47	86	6	866	49	24	10	15	-175
1966	598	46	85	7	926	56	23	10	14	-328
1967	705	52	86	8	999	58	24	9	24	-294
1968	651	45	77	12	1 102	61	21	8	27	-451
1969	667	35	76	13	1 223	54	19	9	31	-556
1970	1 050	50	77	67	1 311	53	20	9	28	-261
1971	861	35	76	16	1 387	53	23	9	28	-526
1972	771	29	74	15	1 190	60	25	12	19	-419
1973	1 153	41	75	14	1 463	55	24	11	21	-310
1974	2 237	36	87	6	2 226	46	25	9	21	11
1975	2 947	56	90	5	3 113	40	19	10	21	-166
1976	2 692	61	88	6	3 180	47	19	11	32	-488
1977	2 912	71	83	7	3 433	54	17	14	33	-522
1978	3 440	73	n.a.	n.a.	3 574	65	n.a.	n.a.	n.a.	-134
1979	3 550	68	n.a.	n.a.	3 687	68	n.a.	n.a.	n.a.	-187

Source: BEC 1968, 1971, AEC 1974, 1976, 1979 and Torres (1981), Table 1.

and 30 percent with other market economies¹¹⁴. However, as long as terms of trade with the West continue to be as dismal as they have been during the last five years, it would be extremely disadvantageous for Cuba to shift her trade to non-socialist countries.

It should be stressed that the increasing trade relations with the Soviet Union do not necessarily mean that Cuba's trade dependence as such has increased. Some authors have erroneously drawn such conclusions by relating Cuban exports (in current prices) to GMP or GSP (which are partially calculated in constant prices)¹¹⁵. Such a comparison not surprisingly shows that exports have increased faster than the economy as a whole. A comparison on the other hand between the volume of exports (that is, in constant prices) and TMP (also in constant prices) shows that exports just about doubled between 1964 and 1979 while TMP increased by 136 percent in the same period.

A key issue for the possibilities for Cuba to reduce her foreign dependence in the near future is the extent to which she will be able to build up an autonomous technological capacity. Judging from the steady outflow of engineers and scientists in Cuba during the last decade, the outlook appears bright. Cuba had in 1980 more than 150 000 students enrolled at universities, compared with only 35 000 ten years earlier. During the last seven years alone 57 000 students have graduated, of which 40% in natural sciences and engineering¹¹⁷.

As mentioned earlier, Cuba has made considerable technical advances in the sugar sector (40% of the equipment in the new sugar mills being constructed in Cuba are made in Cuba) and is also, according to a recent report by the Cuban Academy of Sciences, making rapid progress in other fields, including metallurgy, shipbuilding and computer

technology¹¹⁸. What is both surprising and a bit worrying is, the apparently categorical rejection of all ideas of "intermediate" or "appropriate" technology. According to the document, Cuba must rely on the imports and development of the most advanced technologies in all fields, repudiating other ideas as "retrograde"¹¹⁹. The fear that a reliance on the most advanced technology might create employment problems in the future is refuted with the argument that the unemployment problem once and for all has been resolved in Cuba¹²⁰. This claim is, however, contradicted by the declining rate of employment growth during the last few years which is now openly acknowledged as being of concern to the Government¹²¹. And was perhaps Fidel Castro completely wrong when he warned in 1973, as mentioned earlier (see page 89), about possible headaches with finding jobs in the future?

21. The effects of the US embargo against Cuba are discussed in Adler-Karlsson (1968), Chapter 17.
22. Ritter (1974), p. 101; Mesa-Lago (1971), p. 283.
23. Mesa-Lago (1971).
24. Kenner-Petras (1970), p. 114.
25. Martínez-Alier (1977), p. 114.
26. Noyola (1961), p. 414.
27. Pazos (1962).
28. Chonchol (1963), p. 139.
29. INRA Report quoted in Seers (1964), p. 113.
30. Pazos (1962).
31. Noyola (1961), p. 415.
32. Huberman & Sweezy (1961), p. 140.
33. Dumont in the French weekly L'Express of 22 September, 1960; quoted in Huberman & Sweezy (1961), p. 195.
34. Idem., p. 196.
35. Charles Bettelheim, Memorandum sobre la planificación económica en Cuba, 19 September 1960; quoted in Huberman & Sweezy (1961), p. 196.
36. Kalecki (1961).
37. US Department of Commerce (1956), Table 4, p. 7.
38. Boorstein (1968), p. 90.
39. Idem., p. 91.
40. Guevara (1977: Volume 9), p. 63.
41. Quoted in Boorstein (1968), p. 93.
42. Idem., p. 92.
43. J-L Rodríguez (1979), p. 145.
44. Ritter (1974); Mesa-Lago (1974); Nelson Valdés (1979).
45. Seers (1964).

46. Ritter (1974).
47. Boorstein (1968).
48. García-Noyola (1962).
49. Adler-Karlsson (1968), p. 210.
50. Boorstein (1968). The trade balance turned out to be even worse; see Table IV.6 p
51. Idem., p. 208.
52. Guevara (1977: Volume 7), p. 39.
53. Feldman (1965). Feldman's model and its unrealistic assumptions are discussed in Donar (1957).
54. Wheelwrights & McFarlane (1970).
55. Mora (1963), p. 225.
56. Idem., p. 227.
57. Bettelheim (1964), p. 55.
58. One of the participants, Alberto Mora, did refer to the debate briefly, quoting Erlich's study (Erlich 1960).
59. The "scissor's crisis" got its name from price movements of agricultural and industrial prices. When price differences increased, the "scissor" opened, when they became smaller, the "scissor" closed; see Dobb (1960), Chapter 7.
60. Dobb (1960), p. 162.
61. NEP, on the New Economic Policy, was the "tactical retreat" endorsed by Lenin after the period of "War Communism" (1918-1920). The retreat implied a revitalization of the market, incentives to the private sector, increasing salary differentials, and profit as a means to increase efficiencies, all measures considered necessary for the reactivation of the economy; see Dobb (1960), Chapter 6; and Erlich (1960), Chapter I.
62. Shanin (1965), pp. 208 & 209.
63. Mesa-Lago (1972).
64. Guevara (1977: Volume 7), pp. 134-135.
65. Mesa-Lago (1972), p. 67.
66. Wheelwrights - McFarlane (1970), p. 74.

67. The Liberman discussions in the Soviet Union are reprinted in Sharpe (1966).
68. Castro (1966).
69. Mesa-Lago (1972).
70. C-R Rodríguez (1979), p. 146.
71. Gutelman (1967), p. 64.
72. C-R Rodríguez (1979), p. 147 & Gilly (1964), p. 22.
73. BEC 1971, p. 173.
74. Idem., p. 31.
75. Mesa-Lago (1979).
76. Torres (1981).
77. McEwan (1978), p. 17.
78. Kenner & Petras (1970), p. 327.
79. Idem.
80. Latin America Regional Report (Caribbean), February 1981.
81. Denisov & Yodkovski (1957), p. 37 and Grinko (1931).
82. View expressed to the author by Dr Carlos-Rafael Rodríguez, Vice President of the Council of Ministers and the Council of State, Havana, November 4, 1980.
83. Chonchol (1963).
84. Edquist (1981); Roca (1976); Pollitt (1981); McEwan (1978, 1981); Aranda (1968), pp. 63-68.
85. Mesa-Lago (1981), p. 69.
86. Idem.
87. Edquist (1981), p. 80.
88. Idem.
89. Pollitt (1973), p. 257.
90. Pollitt (1981), p. 8.
91. Mesa-Lago (1981), pp. 176-177.

92. The definition of capital and consumer goods follows Gonzalo Rodríguez' definitions (see Rodríguez (1980) p. 214)

<u>Capital goods sector (A)</u>	<u>Consumer goods sector (B)</u>
Metallurgy & Mechanical Ind.	Food & Beverages
Petro-Chemical Industry	Textiles & Leather
Construction Materials	Sugar
Electricity	Rest of Industries
Mining	
93. See Rodríguez (1980).
94. See Dumont-Mottin (1981), pp. 213-218.
95. Mesa-Lago (1981), p. 70.
96. Idem.
97. Idem., p. 72 .
98. Moran (1978), p. 205.
99. Mesa-Lago (1981), p. 46.
100. Banco Nacional (1980), p. 2.
101. Mesa-Lago (1981), p. 129. Planting still remains largely unmechanized.
102. Idem.
103. Idem., p. 61.
104. Idem. Burning is, however, still used with good results according to Charles Edquist.
105. Edquist (1981), p. 100.
106. Mesa-Lago (1981), p. 63.
107. Pollitt (1981), p. 7.
108. Castro (1973).
109. Mesa-Lago (1981), p. 130.
110. Quoted in Pérez-Stable (1975), p. 68.
111. Dupuy and Yrchik (1978), p. 56.
112. Mesa-Lago (1981), p. 106.
113. See Pérez-López (1979).

114. Mesa-Lago (1979), p. 179.
115. See, for instance, Mesa-Lago (1981), p. 79 and Eckstein.
116. TMP figures in Appendix Table 7 & 8 and export volume in Torres (1981), Table 3.
117. AEC (1979), p. 220.
118. García Capoto (1980), pp. 7-11. see also Fabian (1980), Ch. 12.3. and G. Rodríguez (1980), Ch. VI.
119. Idem. p. 118.
120. García Capoto (1980). p. 13.
121. See Mesa-Lago (1981), p. 131.

IV. BASIC NEEDS AND ECONOMIC GROWTH

IV.1 A Yardstick of Basic Needs

It is widely recognized that Cuba immediately after the Revolution strongly emphasized the elimination of poverty through radical measures of income redistribution coupled with impressive efforts to raise the educational and health levels of the population, especially in the rural areas.¹⁾ In the 1960s it was often assumed that these drastic measures through declining investment ratios would hamper economic growth, at least in the short run.²⁾ As shown in the preceding chapter and also elsewhere, it is true that economic growth was rather sluggish during the whole period of the 1960s but it has also been shown that the growth record during the last decade has been quite impressive. It should then be of interest to compare the Cuban growth performance with its 'basic needs' performance during the last two decades.

In doing this, we would need some kind of measure, or yardstick, of 'basic needs'. For a rather long time there have been numerous attempts to define 'basic needs' as well as attempts to measure both efforts involved in and results of, satisfying such needs. Some kind of yardstick, it is argued, would facilitate the comparison of basic needs achievements, or non-achievement in the developing countries.³⁾

The 'basic needs' approach to development in developing countries has been summarized in the resolution of the World Employment Conference held in 1976:

"Strategies and national development plans and policies should include explicitly as a priority objective the

promotion of employment and the satisfaction of the basic needs of each country's population... Basic needs include two elements. First, they include certain minimum requirements of a family for private consumption: adequate food, shelter and clothing, as well as certain household equipment and furniture. Second, they include essential services provided by and for the community at large, such as safe drinking water, sanitation, public transport and health, educational and cultural facilities."4)

This emphasis on meeting basic human needs requires an indicator, or a set of indicators, that could measure both deprivation and advances in the satisfaction of such needs. Norman Hicks and Paul Streeten have identified and reviewed four different approaches to the measurement problem⁵⁾:

- i) adjustments to GNP;
- ii) social indicators;
- iii) social accounting system; and
- iv) composite indices.

The work on various adjustments of GNP estimates in order to incorporate various welfare aspects of development has received well-merited attention ever since the debate on growth versus development started some decades ago. The many pitfalls of using GNP measures in inter-country comparisons are today commonplace.⁶⁾

Colin Clark was one of the pioneers in attempting to make national accounts comparable, measuring output at international prices and Beckerman, Gilbert & Kravis and Kravis et al. have made more recent attempts to compare gross products and purchasing power.⁷⁾

Within international agencies, like the United Nations, OECD and UNESCO, a considerable amount of work has been done in order to collect sets of social indicators, in an attempt to define social progress through a series of non-monetary variables such as expectation of life at birth, calorie consumption, school-enrolments, hospital beds and density of physicians. Such indicators sometimes make cross-country comparisons more meaningful since they avoid the valuation problem. A disadvantage of this approach, however, is the absence of a single, comprehensive indicator that could measure a country's relative success or failure over time and its relation to other countries.

As a sequel to the search for adequate and meaningful social indicators, Hicks and Streeten also mention the incipient research devoted to developing a system of social accounts. Thus, for instance, both Stone⁸⁾ and Seers⁹⁾ have proposed the use of lifetime activity sequence whereby total life expectancy is divided into segments showing the average time various categories of people could be expected to spend in different activities such as school, work, leisure, retirement etc. Such a system, however, goes far beyond the data available in most developing countries and would in the case of an assessment of revolutionary Cuba no doubt be a frustrating exercise.

Another recent and much discussed effort is Morris D. Morris' so-called Physical Quality of Life Index (PQLI)¹⁰⁾ which consists of three simple indicators with equal weights: life expectancy (at age 1), infant mortality and literacy. One advantage (and perhaps the only one) of selecting only three indicators is that it permits the calculation of the PQLI for a wide range of countries and facilitates the comparison of changes over time. However, the disadvantages appear to heavily outweigh the advantages and the method has been criticized for being both oversimplistic and useless.¹¹⁾

The PQLI converts the raw data on the three component variables into a scale of 1 to 100 and a simple linear combination is then achieved by simply dividing by three, thus giving equal weight to each component. The result is a handy table of indices of "life quality" for 150 countries where Cuba gets the score 84, Brazil 68, and Peru 62 while the United States is indexed 94 (the optimal index, by definition, being 100)¹²⁾. But the question then is how meaningful such an index is. Larson and Wilford go as far as to say that the three input variables are so closely associated and correlated with each other that "accordingly, in order to avoid the weighting problems associated with a composite index, it would be preferable, in the interest of parsimony, to use only one component".¹³⁾

Hicks and Streeten also point to the fact that even if the components move in different directions, the meaningfulness of the composite index would be highly doubtful since

"to have the same index for a situation in which mortality is high and literacy low, as for one in which literacy is high and mortality low, implies evaluating the 'trade off' between literacy and life expectancy. Unless the basis for such an evaluation can be established, all weighting remains arbitrary and misleading, and composition is impossible".¹⁴⁾

IV.2 A Composite Basic Needs Index for Cuba

The dilemma with respect to the search for a basic needs yardstick thus seems to be that either the index is based on so many complex components that the index turns out both unreliable and difficult to interpret, or that the index is so simplistic (like the PQLI) that one might just as well use any one of the social indicators. In the light of this dismal conclusion it might seem bold to suggest an alternative basic needs index for Cuba, especially since Hicks and Streeten no doubt are right when they say that "there is no obvious way to combine different social indicators"¹⁵). Nevertheless, I shall here develop a composite index that could be a tool for assessing the basic needs performance in Cuba 1958-1980.

As a starting point I have taken Hicks' and Streeten's own recommendation for future work: to define the best indicator(s) for the essential basic needs which are considered to cover six areas: nutrition, education, health, sanitation, water supply and housing. With respect to most of these fields there would not be any unsurmountable problem in finding adequate time-series data for Cuba. The problem then is to find an acceptable system of weights which would make it possible to combine the core indicators into a composite basic needs index. Hicks and Streeten, however, pessimistically say that "the chances of an acceptable system of weights being developed are extremely small"¹⁶).

In spite of this gloomy prophecy I have here opted for developing a basic needs index based on the revaluation of quantity data in the same way as real consumption is sometimes measured, as an alternative to the more common practice of deflating nominal consumption

expenditures.¹⁷⁾ The main advantage of this approach is that it does not depend on price indicators over time which, as a rule, are not easily accessible in developing countries. And in this respect Cuba is no exception. While price information is extremely hard to find, quantity information has gradually become more readily available during the last few years although there still remain quite a few problems and doubts in the construction of longer time series as discussed in Chapter II.

The first step in developing a basic needs index for Cuba would then be to find corresponding quantity data for the "consumption" of basic needs and then to find some adequate relative prices as weights. The revaluation of "basic needs consumption" is approximated simply by the conventional Laspeyre's measure, $\sum p_i^0 q_i^t$ which is then converted to the index by dividing by the value of the measure in the base year.

In applying this method to Cuba two problems arise:
(i) finding adequate and reasonably reliable time series of quantity data for the basic needs categories and
(ii) finding adequate and meaningful weights, or relative prices. In the following section the Cuban quantity data will be presented and discussed for the following basic needs categories chosen: food and beverages, clothing, housing, education and health.

IV.3 Food and Beverages

Meeting the nutritional needs of the population is no doubt one of the most urgent tasks confronting a government that aims at changing the state of the poor in the country. As discussed in the preceding chapter there were illusions in Cuba in the early 1960s about the possibilities of solving this problem in the short run. Partly as a result of limited domestic resources, partly due to obvious errors in the strategy followed, and partly due to the increasing isolation of the island, the situation got gradually worse in the 1960s. In order to guarantee a minimum ration to all citizens a rigorous rationing system was introduced already in March 1962. In this section I have tried to estimate the availability of food and beverages to the Cubans between 1959 and 1980.

The quantity data are mainly based on official data on the distribution of consumer goods to the population, 1963-1980.¹⁸⁾ These figures have then been divided by official mid-year population estimates for respective years. Appendix Tables 18 A_F show per capita consumption of forty basic food products and of soft drinks and beer. These per capita estimates might be somewhat underestimated since, presumably, they do not include the autoconsumption of independent farmers and their families.¹⁹⁾ Another problem is that there are no consistent series for 1958-1962. As a crude estimate for those years I have simply applied the production indices for food and beverages, respectively, for this period presented in Chapter II.

In order to arrive at an index of availability of food and beverages in Cuba, it is necessary to use some kind of relative prices as weights. Since most indices in Cuba are calculated in 1965 prices (most prices were supposedly frozen in that year) the best

method would seem to be to use the official retail prices of that year. I have also been able to consult the official list of retail prices, which although dated 1977, as a rule, are the same as those of 1965.²⁰⁾ But here a problem arises, because even if it is true that prices on the rationed quota have not changed, this does not mean that the real per capita expenditures on food and beverages necessarily are reflected by these prices. In a market economy where prices, at least in principle, reflect the relative scarcity of goods, the use of market prices as weights makes sense. In a system with administered prices the question is much more complicated. Because what is the "true" price for instance of beef, or black beans if an unknown, but probably substantial, share of the supply is sold outside the rationed market at prices that may be five to ten times the official price?²¹⁾ And this does not necessarily mean that it is illegal or black market. The policy of the government has since the early 1970s been to introduce a legal "parallel market" where excess supply of goods is sold at prices that more reflect supply and demand (the role of the "parallel market will be further discussed in Chapter V). It could be argued that the "true" price should be a weighted average of the price on the rationed market and the price in the "parallel market" but this would require such detailed information about the relative weights of those markets, impossible to incorporate in this study, and I have therefore had to use the official prices mentioned.

Since there could be bias using official Cuban prices as weights I have as a check also used shadow prices in an alternative index estimate. As shadow

prices I have used Dan Usher's 1961 Canadian prices which he used for a similar exercise and for more or less the same products. The results of both estimates are detailed in Appendix Tables 20 & 21, and a complete listing of the prices applied is shown in Appendix Table 19A & B. The indices yield surprisingly similar trends as shown in Figure IV.1 below.

Figure IV.1 Index of Per Capita Expenditures on Food and Beverages, 1958-1980 (1963 = 100)



Source: Tables IV.10 A & IV. 10 B.

A closer look at the two indices, however, reveal some interesting differences between the weights used. Table IV.1 shows indices for selected product groups and years using alternative weights. As seen there are some striking discrepancies, particularly in the 1963-1968 period. This is what happens when products which have relatively high prices also have relatively high growth rates and/or when products with relatively low prices also have relatively slow growth rates. In the long run, however, it seems that these differences tend to diminish.

Table IV.1 Indices of consumption of food & beverages, Cuban & Canadian weights (1963=100)

	1963	1968	1975	1980
MEAT PRODUCTS				
Cuban weights	100.0	120.1	113.6	138.9
Canadian weights	100.0	106.0	115.8	141.3
OILS & FATS				
Cuban weights	100.0	102.4	123.6	141.87
Canadian weights	100.0	117.9	125.5	133.4
CEREALS				
Cuban weights	100.0	144.3	174.3	177.2
Canadian weights	100.0	163.6	198.6	198.6
MILK PRODUCTS				
Cuban weights	100.0	178.7	263.4	293.3
Canadian weights	100.0	165.1	246.4	273.8
BEVERAGES				
Cuban weights	100.0	98.1	132.5	131.4
Canadian weights	100.0	88.2	99.8	104.3
TOTAL FOOD & BEVERAGES				
Cuban weights	100.0	115.8	140.4	149.5
Canadian weights	100.0	120.2	137.23	150.7

Source: Appendix Tables 20 & 21

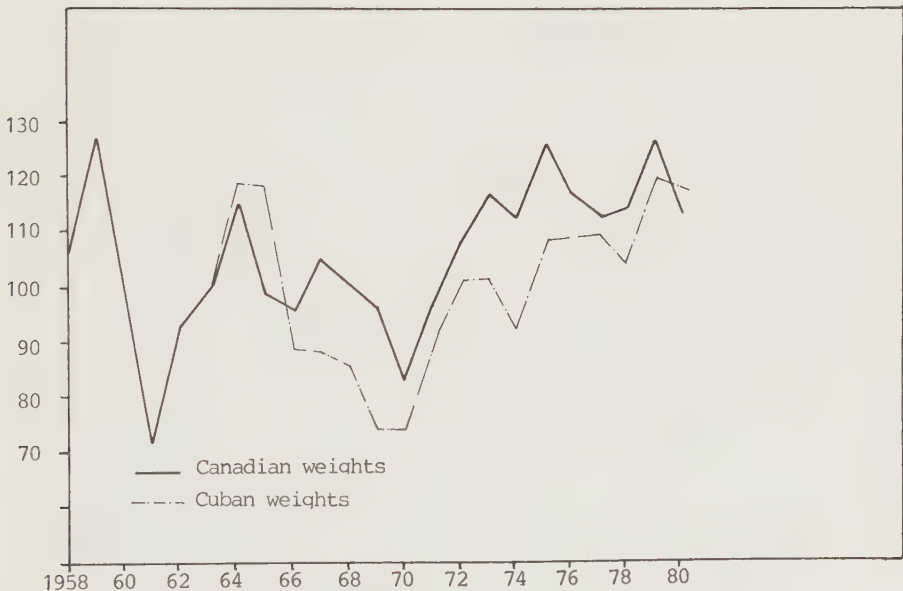
Both indices indicate that per capita availability of food and beverages increased by about 50 percent between 1963 and 1980. It should then be recalled that 1963 was a very bad year. If a comparison is made with 1958, the increase is 33 percent and 39 percent in Cuban and Canadian prices, respectively. But increase in consumption is only part of the story. Cuba before the revolution heavily depended on imports of many food products. For instance, in the 1940s, 95 percent of the rice consumption was met with imports. In the 1950s there was a rapid expansion of domestic rice production and in 1956 the import share had decreased to 45 percent.²²⁾ There was a drastic reduction in rice production between 1963 and 1969 as mentioned earlier (p. 78) and in 1966 almost 80 percent of the consumption had to be covered by imports.²³⁾ After 1970 there has been a gradual increase in the domestic supply of rice and the import content of rice consumption had by the end of the 1970s declined to 42 percent.²⁴⁾ However, this figure is a disappointment considering that the target for the Five Year Plan 1976-1980 was self sufficiency in rice by the end of the period.²⁵⁾

IV.4 Clothing

The calculation of an index of clothing follows the same lines as in the case of food and beverages. That is, I have used the official retail prices as weights for the most common textiles, apparel and footwear used in Cuba, such as cotton and rayon cloth, shirts, dresses, pants, underwear and leather shoes. Detailed statistics on the availability of these consumer items for the period 1963-1980 are shown in Appendix Table . Like in the case of food and beverages

I have also calculated an alternative index based on Usher's Canadian prices. Both indices are depicted in Figure IV.2. The index between 1958 and 1963, is based on the output index for textiles and leather industries presented in Chapter II, and is thus identical for both estimates. Estimated total per capita expenditures on clothing in both Cuban and Canadian prices are shown in Appendix Tables 22 & 23.

Figure IV.2 Index of Per Capita Expenditures on Clothing,
1958-1980 (1963 = 100)



Source: Tables IV.10A & IV.10B.

The expenditures as measured in Canadian prices are much lower than those measured in Cuban prices. Partly, this is a result of the fact that the consumption of textiles is not included in the estimate using Canadian weights for the simple reason that Usher has no price information on textiles. Since the Cubans, like in many other developing countries, often make their own clothes from purchased textiles it was considered important to also include textiles aimed for final consumption. However, even if textiles are excluded, per capita expenditures weighted by Cuban prices are much higher than when weighted by Canadian prices, reflecting the much lower relative prices of clothing in Canada (for detailed price comparison see Appendix Table 19).

The textile industry was one of the most adversely affected after the Revolution. The textile mills had been heavily dependent on imported machinery and raw materials from the United States.²⁶⁾ In the late 1960s the Soviet Union agreed to help modernize the textile industry but the first effects became noticeable only by the mid-1970s. There was a drive to replace synthetic fibres by cotton fibres in the 1960s. Cotton had been produced in Cuba in the 19th century but it was abandoned during most of the current century.²⁷⁾ There have been attempts to cultivate cotton since 1959 but apparently without any great success.²⁸⁾

IV.5 Housing

Adequate shelter is an essential part of basic needs. At the same time it is perhaps the most difficult area to measure in a meaningful and reliable way. First of all, information is often rudimentary, and trustworthy

data on the standard of housing are usually only available through censuses held with ten year intervals, or more.

In order to construct a housing index one would above all need some measure of housing space per inhabitant, ideally number of square meters per capita and average rents per square meter. This information is not available in Cuba, at least to my knowledge, and nor was it, apparently, available to Usher in the case of Canada because he used number of dwellings per thousand inhabitants subdivided according to the number of rooms "(which have been) evaluated according to the purchase price of dwellings in 1961 on the assumption that house rents are proportional to house prices".²⁹⁾

In order to construct a housing index for Cuba for the period 1958-1978 I have used three sources: (i) Censo de Población y Viviendas 1970; (ii) Censo de Población, Viviendas y Electoral 1953; and (iii) scattered information about annual housing construction between 1958 and 1980. In order to get an estimate of the annual stock of dwellings by number of rooms, the following assumptions were made:

(i) The starting point was the 1970 Census which gives the stock of dwellings in Cuba in September 1970 by number of rooms.

(ii) It was assumed that no houses were demolished, at least not completely, during the period 1958-1980.³⁰⁾

(iii) Further more it was assumed that the distribution of rooms has been the same in each new vintage of housing construction.

These assumptions being made, it has been possible to arrive at the stock estimate shown in Table IV.2.

Table IV.2 Annual Construction and Estimated Stock of Dwellings, 1958-1980

	<u>Annual Construction</u> (units)	<u>Estimated Stock</u> (000 units)
1958	4 961	1 763.7
59		1 771.7
1960	} 85 447	1 799.9
61		1 821.3
62		1 837.6
63		1 849.1
64	7 129	1 856.2
65	5 065	1 861.3
66	6 271	1 867.6
67	10 257	1 877.8
68	6 458	1 884.3
69	4 817	1 889.1
1970	4 004	1 893.1
71	5 014	1 898.1
72	16 807	1 914.9
73	20 710	1 935.6
74	18 552	1 954.2
75	18 602	1 972.8
76	15 342	1 988.1
77	20 024	2 008.1
78	17 012	2 025.2
79	14 201	2 039.4
1980	14 800	2 054.2

Source: CERP (1965), p. 435; BEC 1968, 1970 & 1971; AEC 1974 & 1979 and BEM (March) 1981.

Of all basic needs, housing is the sector showing the worst performance since the Revolution. But this does not mean that the situation was better before the Revolution. The 1953 housing census showed that only 43 percent of the population lived in more or less acceptable conditions.³²⁾ In the five-year period preceding the Revolution, construction of dwellings averaged only about 5 000 units annually and of these, between 71 to 83 percent were concentrated in the Havana province, and of those between 60 and 88 percent represented construction of residences and luxury apartment houses.³³⁾

The Revolutionary Government was determined from the outset to ameliorate the housing situation not only by stepping up construction but also by decreasing the burden of rent for the population. As mentioned earlier (p.55), rents were cut by half for most people already in March 1959, and an Urban Reform Law in October 1960 enabled tenants to become owners of their homes within a 5-10 year period.³⁴⁾ By 1972, three fourths of all households in Cuba had become owners of their homes for life.³⁵⁾

There was also a serious effort made by the government to rapidly increase housing construction and an average of 17 000 new dwelling units were built annually during the first five years after the Revolution, of which 35 percent in the rural areas. But this increase was too slow in order to make up for population growth and the accumulated deficits of the past. In 1964 Fidel Castro estimated that there was a housing deficit of 655 000 units and later raised the figure to one million.³⁶⁾ This harsh reality was in marked contrast to the gradual slowdown in housing construction, reaching a trough in

1970 with only 4 000 units built, probably a consequence of the acute shortage of labour due to the zafra campaign. In the 1970s, housing construction again increased but it was still far from the goal of 100 000 dwellings originally set for 1980.³⁷⁾ In the new five-year plan for 1981-1985, the target has been lowered to an average of 40 000 dwelling units to be built annually but even this goal will be hard to reach.³⁸⁾

During the first half of the 1970s the lack of construction workers was considered to be one major bottleneck and therefore a system of microbrigadas was created. The concept of microbrigada was simple. Workers in any centre of production could ask to form a brigade to construct houses in order to meet their own work centres' current needs. A brigade would as a rule consist of 30 persons, on paid leave from their normal jobs, supervised by two or three qualified building workers. In the meantime it was assumed that production levels should be maintained by those remaining in the work centres, accepting extra work at evenings or weekends. At its peak in 1973 these microbrigades accounted for about 65 percent of all houses built in Cuba.³⁹⁾ The idea of relying on microbrigades for solving the housing deficits was later abandoned as being too costly both in terms of material and labour.⁴⁰⁾

In order to construct an index that reflects the per capita availability of shelter in Cuba, and in conformity with the expenditure concept used in the preceding sections, we need some price per dwelling following the Usher methodology earlier referred to. It would be meaningless to use actual rents paid in Cuba as weights since the large majority of Cubans pay rents that are related to their income, or pay no rents at all. Instead I have had to use an arbitrary price per number of rooms based on information

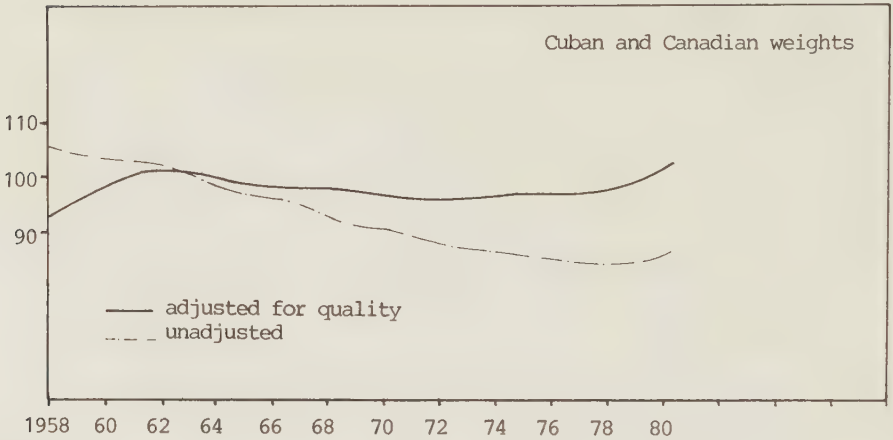
from 1958 on construction costs per square meter.⁴¹⁾ The 1970 Census gives the distribution of dwellings by number of rooms and in this way I have estimated the total expenditures on housing in 1970. (See Table IV.3). The total stock of dwellings in the period 1958-1980 and known, per capita expenditures on housing in constant Cuban prices have been estimated for the same period. As an alternative estimate I have also used Usher's Canadian prices which not surprisingly are substantially higher than in Cuba. The index of per capita expenditures on housing is depicted in Figure IV.3.

Table IV.3 Number of dwellings and shadow rents paid by number of rooms - 1970

	Number of dwellings		Total shadow rents	
	units	%	Cuban prices (000 pesos)	Canadian prices (000 dollars)
1 room	185 784	9.8	30 097	40 501
2 rooms	280 160	14.8	75 643	145 683
3 rooms	395 415	20.9	149 467	326 217
4 rooms	447 511	23.6	211 490	514 817
5 rooms	353 285	18.7	209 851	524 664
6 rooms	146 842	7.8	103 083	258 692
7 rooms	51 897	2.7	42 037	96 970
8 rooms	19 507	1.0	17 907	41 062
9 rooms	7 117	0.4	7 302	14 981
10 or more	5 570	0.3	6 316	14 811
Total	1 893 088	100.0	859 193	1 978 398
Expenditure/capita			100.48	231.81

Source: Censo de Población y Viviendas 1970, Table 26;
Cuban prices: CERP (1965), p. 433;
Canadian prices: Usher (1981), Table 10.2(c).

Figure IV.3 Index of Per Capita Expenditures on Housing, 1958-1980
(1963 = 100)



Source: Appendix Table 26.

The housing situation is, however, not only reflected by dwelling space per capita but also its quality and equipment with basic facilities. Dan Usher has in his study on consumption in Canada adjusted original quantity data on dwelling expenditures per capita by what might be called quality change.⁴²⁾ For this purpose he constructed a "quality index" based on percentage of dwellings with running water, flush toilets, and baths/showers. The quality index for Cuba is a somewhat modified version of Usher's index. Instead of access to bath or shower, which is hardly a top priority for basic needs, I have considered the quality factor "equipped with electric light".

Quality data do not exist, of course, for each of the years in the 1950-1980 period under consideration. Both the Censuses of 1953 and 1970, respectively, have information on

housing conditions in both urban and rural areas. A summary of this information is shown in Table IV.4. We can see that there have been improvements in housing conditions between 1953 and 1970, especially in the rural areas. During the first years after the Revolution the government provided sanitary installations and cement flooring for over 100 000 dwellings in the countryside and furnished thousands of dwellings in the poorer urban districts with running water and other facilities.⁴³⁾

Table IV.4 Dwellings with Basic Facilities, Urban and Rural, 1953 & 1970 (percent)

	<u>With Electricity</u>		<u>With Flush Toilet</u>		<u>With Piped Water</u>	
	<u>1953</u>	<u>1970</u>	<u>1953</u>	<u>1970</u>	<u>1953</u>	<u>1970</u>
Urban areas	87.0	98.1	42.8	53.4	54.6	64.2
Rural areas	9.1	19.6	3.1	5.6	2.3	11.0
Cuba Average	58.2	70.7	28.0	36.7	35.2	45.7

Source: Censo de Población, Viviendas y Electoral, 1953, quoted in Seers (1964), p. 96; Censo de Población y Viviendas, 1970, Tables 28, 30 & 32.

The quality index is simply the unweighted average (divided by a hundred) of the three basic facilities considered. In order to get a quality index for each of the years, it has been assumed that all new housing has been equipped with electricity, flush toilets and running water which is a reasonable assumption. An alternative housing index has then been calculated adjusting the original estimates on housing expenditure per capita for quality change, by multiplying these values with the quality index. This alternative index is also shown in Figure IV.3 (for full details see Appendix Table 26). The adjustment for quality gives a slightly better picture of housing conditions in Cuba after the Revolution. While the unadjusted index shows a steady deterioration since 1958, the index adjusted for quality change shows a rather stationary trend.

IV.6 Education

Literacy rates, enrolment ratios and other educational data belong to standard information cited in evaluations of a particular country's basic needs performance. Partly, of course, because education is a very important aspect of basic needs, but partly, also because such statistics are usually those most readily available in developing countries. Cuba is no exception. Educational data are considered to be among the most reliable information obtained in Cuban statistics.⁴⁴⁾

As educational achievement indicators I have (in conformity with Usher) chosen enrolments ratios per capita by level of education. I have, however, also considered adult education partly because of its great importance in general in developing countries, but also as a measure of the eradication of illiteracy which is difficult to evaluate in money terms. Enrolment figures for the period 1958-1980 are shown in Table IV.5.

The next step was to translate these enrolment ratios into expenditure per capita. Usher has as weights used cost per student valued in 1961 dollars inclusive of earnings foregone. It is difficult to find similar cost estimates for Cuba but a study prepared by the Cuban Ministry of Education in the 1960s reveals strikingly similar relative costs by levels of education, compared with Usher's relative cost estimates. A comparison of the two last estimates is shown in Table IV.6.

In the index using Cuban weights I have distinguished between basic rural and basic urban secondary education because of the much higher costs involved in building and operating schools in the countryside.

Table IV.5 Basic needs indicators - education, 1958-1980

	Students as % of population		
	Primary	Secondary	Higher
			Adult
			Total
1958	10.61	1.30	0.38
59	15.83	1.31	0.28
1960	16.17	1.75	0.28
61	16.36	2.12	0.25
62	16.78	2.30	0.24
63	17.75	2.71	0.28
64	18.01	2.57	0.35
65	17.06	2.60	0.34
66	17.12	2.94	0.35
67	17.17	2.88	0.36
68	17.70	3.03	0.39
69	18.50	3.04	0.41
1970	19.47	2.78	0.41
71	20.24	3.28	0.42
72	20.91	3.66	0.55
73	21.02	4.38	0.62
74	20.92	5.66	0.75
75	20.59	6.74	0.91
76	20.05	8.51	1.13
77	19.23	10.04	1.33
78	18.17	11.08	1.37
79	17.13	11.78	1.50
1980	16.32	11.99	1.56
) Estimate			3.08
			32.95

*) Estimate

Sources: Appendix Table 27

Table IV.6 A comparison of average costs per student by type of education in Cuba and Canada 1961

	Canada 1961		Cuba 1961	
	(Can.\$)	Index	(pesos)	Index
Primary	300	100	54	100
Secondary	1 600	533	222*	411*
basic urban			139	257
basic rural			1 353	2 506
Higher education	3 600	1 200	--	--
technical schools			748	1 385
Adult education (part-time)	(300)**	(100)**	58	107

*) 1962; **) Usher has no estimate for adult education. The figure 300 is used in my estimates of expenditures on adult education measured in Canadian assuming that the cost per student is approximately the same as in primary education.

Sources: Canadian estimates in Usher (1980), Table 10.2 and Cuban figures quoted in Seers (1964), p. 275.

The educational upsurge in the rural areas is perhaps the most spectacular accomplishment of the Cuban Revolution (see Appendix Table 27). Before 1959 there were no secondary schools at all in the countryside and as late as in 1971 secondary rural enrolment only amounted to some 3 000 children. Since the 1970s, however, a continuous effort has gone into the construction of full boarding schools in the countryside based on the principle of half-time-work and half-time-study, in order to eliminate traditional attitudes looking down on manual work. By the end of the decade there were 368 such escuelas en el campo with more than 200 000 students, accounting for 25 percent of total secondary enrolments.

While the emphasis during the last decade was on expanding secondary and higher education, the priority in the 1960s had understandably been to increase primary

education and at the same time make adults, especially in the rural areas, literate. It has been estimated that the illiteracy rate on the eve of the Revolution was about 21 percent.⁴⁵⁾ An intensive, and world-wide famous, literacy campaign was launched in 1961 when some 200 000 Cubans were mobilized under the slogan 'Let those who know more teach those who know less'.⁴⁶⁾ The Cuban government claimed that the illiteracy rate dropped to 3.9 percent in less than one year - a claim later investigated by UNESCO and described as probably unequalled in the world.⁴⁷⁾ This figure is probably exaggerated none the less and was also questioned by Richard Jolly, an expert in the field, at the time.⁴⁸⁾ Although the official 1970 census has no tables on educational attainment, it has been reported that the census of that year in fact registered an illiteracy rate of no less than 12.9 percent.⁴⁹⁾ One reason for this contradiction could of course be a new definition of literacy, another reason could be that hidden, undiscovered illiteracy, was much higher than thought in 1961. At any rate, a national survey in April 1980 showed that the adult illiteracy rate had fallen to 4.0 percent.⁵⁰⁾

An important aspect of the literacy campaign, and perhaps the most important one, was that when the campaign ended, an ambitious programme to elevate the educational levels of people at large was launched, and primary and secondary schooling was offered in farms, factories, offices and night schools.⁵¹⁾ Courses leading to third-grade education were made available to more than half a million adults in the mid-60s, culminating in 848 000 enrolled in 1964. The next phase was the "battle for the sixth grade", the target being that all workers and farmers should attain an educational level corresponding to a completed primary education (see Figure IV.4). This tar-

Figure IV.4

The Cuban Educational System

I - REGULAR EDUCATION

PREP. SCHOOL	1	2	3	4	5	6
-----------------	---	---	---	---	---	---

7	8	9
BASIC SECONDARY		

10	11	12
PREDUNIVERSITY		

1 YEAR POLYTECH. INSTITUTE

1	2	3	4
PEDAGOGICAL SCHOOLS			

2-3 YEARS POLYTECHNICAL SCHOOLS

3-4 YEARS POLYTECHNICAL INSTITUTES
--

1-2 YEARS POLYTECHNICAL SCHOOLS

1S	2S	3S	4S
WORKER-FARMER SECONDARY			

1S	2S	3S	4S	5S	6S
WORKER-FARMER FACULTY					

1S	2S	3S	4S
LANGUAGE SCHOOLS			

- UNIVERSITIES - UNIVERSITY CENTERS - COLLEGES

II - ADULT EDUCATION

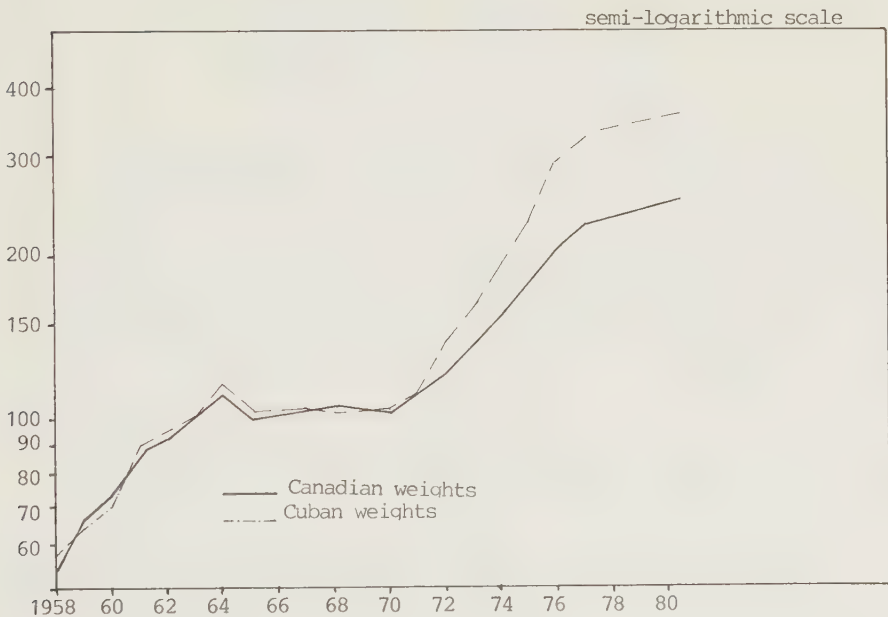
1S*	2S	3S	4S
WORKER-FARMER EDUCATION			

*) 2 semesters = 1 academic year

get was reportedly reached in 1980⁵²⁾ and a new battle, "the battle for the ninth grade" was launched at the Second Congress of the Communist Party in December 1980.

Summing up, Figure IV.5 below shows the two alternative estimates of per capita expenditures on education. As seen there is a clear concordance between the two indices. Both indicate a rapid growth during the whole post-revolutionary period but with an accelerated growth in the 1970s due to the expansion of secondary and higher education which have been attributed with much higher relative weights in both indices.

Figure IV.5 An Index of Per Capita Expenditures on Education,
1958-1980 (1963 = 100)



Source: Tables IV.10A & IV.10B.

IV.7 Health

As indicators of the efforts going into health services I have, like Usher, used four variables: (i) physicians; (ii) dentists, (iii) nurses, and (iv) hospital beds, all expressed as number per thousand inhabitants (see Table IV.7). Translating these indicators into value terms I have again followed Usher's method. He measured the services of physicians and dentists in their (1961) average gross incomes. Graduate nurses and number of hospital beds were considered as "surrogates for all other aspects of medicine including drugs and services of medical equipment".⁵³⁾ Unfortunately it is not clear exactly how these "surrogates" were evaluated. Usher only says that

"nurses- services are evaluated ... at a price substantially higher than the nurse's wage, and the value of the services of hospital beds is measured as the difference between total expenditure on medicine and estimated expenditure on doctors, dentists and nurses".⁵⁴⁾

The prices used by Usher are shown in Table IV.8, together with corresponding weights used when measuring with Cuban prices. The Cuban weights are based on the average annual salary level for physicians, dentists and nurses in 1968.⁵⁵⁾ The price per hospital bed is an attributed value corresponding to the same price ratio between physician/hospital bed as applied by Usher.

The indices of health expenditures per capita in Figure IV.6 both show similar trends, whether weighted by Cuban or Canadian prices. This is not surprising since the relative weights used are almost identical. The indices show that Cuba's overall advances in health care are not as spectacular as those in education.

Table IV.7 Basic needs indicators - health, 1958-1980

	Physicians		Dentists		Nurses		Hospital beds	
	Number	Per 1000 inhabitants	Number	Per 1000 inhabitants	Number	Per 100 inhabitants	Number	Per 1000 inhabitants
1958	6 257	0.93	2 100	0.31	5 000*	0.74	28 536	4.22
59	6 943*	1.01	2 129*	0.31	5 431*	0.79	30 522	4.42
1960	6 773*	0.96	1 738*	0.25	5 862*	0.83	32 508	4.63
61	6 330*	0.89	1 182*	0.17	6 293*	0.88	34 494	4.84
62	6 570*	0.91	1 054*	0.15	6 724*	0.93	36 487	5.03
63	6 743	0.91	978	0.13	7 156	0.97	36 479	4.92
64	6 655	0.87	1 070	0.14	8 347	1.10	37 523	4.93
65	6 238	0.80	1 200	0.15	9 637	1.23	38 696	4.95
66	7 036	0.88	1 121	0.14	10 253	1.28	39 708	4.97
67	6 608	0.81	1 081	0.13	12 459	1.53	40 816	5.01
68	6 000*	0.72	1 100*	0.13	13 000*	1.57	41 027	4.95
69	6 028	0.72	1 248	0.15	14 372	1.71	41 706	4.95
1970	6 152	0.72	1 366	0.16	11 803	1.38	40 101	4.69
71	6 204	0.71	1 149	0.13	13 155	1.51	40 321	4.64
72	6 549	0.74	1 346	0.15	13 871	1.57	40 313	4.55
73	7 043	0.78	1 746	0.19	17 210	1.90	41 019	4.54
74	8 190	0.89	2 029	0.22	19 131	2.08	44 379	4.83
75	9 328	1.00	2 319	0.25	21 193	2.27	42 712	4.58
76	10 671	1.13	2 425	0.26	23 725	2.51	42 940	4.53
77	13 908	1.45	3 130	0.33	24 891	2.60	42 519	4.44
78	14 388	1.48	3 356	0.35	26 249	2.71	42 988	4.45
79	15 038	1.54	3 549	0.36	26 457	2.71	43 883	4.49
1980	15 500	1.59	3 700*	0.38	26 700*	2.74	44 000	4.52

*) Estimates, explained in note 31

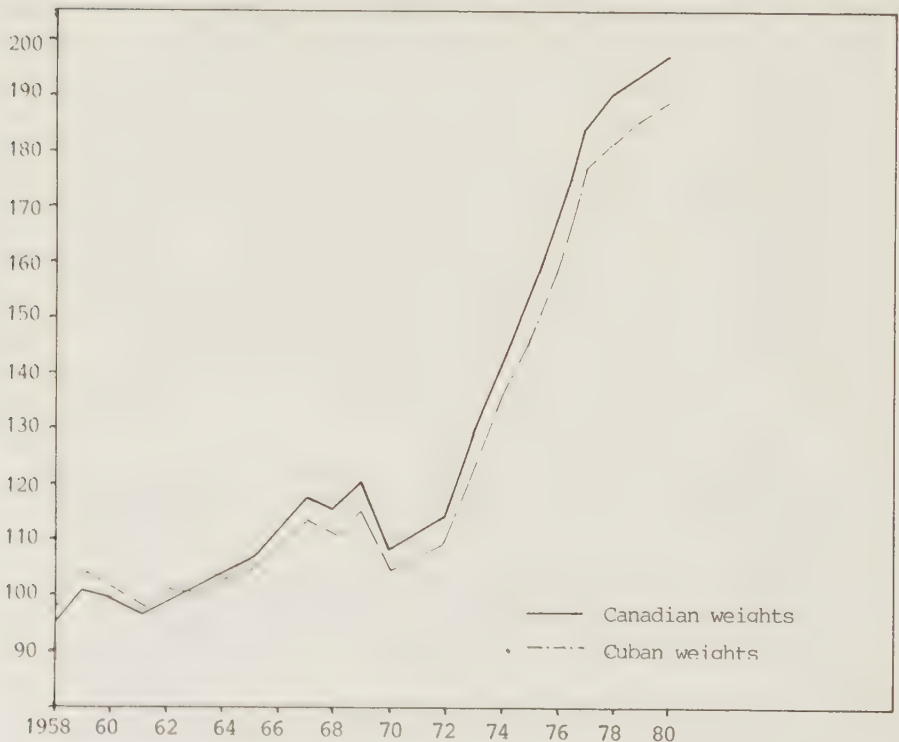
Sources: BEC 1968, 1970 & 1971; AEC 1974 & 1979; Leyva (1972); Martínez Junco (1968); Ministerio de Salud (1980).

Table IV.8 Estimated Unit Costs in Health Services, Canadian and Cuban prices

	<u>Canadian prices</u> <u>(1961 dollars)</u>	<u>Cuban prices</u> <u>(1968 prices)</u>
Physicians	26 000	3 300
Dentists	24 000	3 300
Nurses	25 000	2 400
Hospital beds	3 590	455

Sources: Canadian prices: Usher (1980), Table 10.2 (f);
Cuban prices: Information supplied by the Cuban Embassy
in Stockholm (except for hospital beds).

Figure IV.6 An Index of Per Capita Expenditures on Health Services, 1958-1980 (1963 = 100)



Source: Tables IV.10A & IV.10B.

Especially, it seems that there was a very slow advance in the 1960s, and this is also corroborated by other indicators. Thus, for instance, the infant mortality rate, which in 1958 was 33.4 per thousand children below one year of age, even increased to 46.7 per thousand by the end of the 1960s, but has since then fallen rapidly and was in 1979 as low as 19.3 per thousand, a record low in Latin America.⁵⁶⁾

During the second decade many diseases were completely eradicated in Cuba (malaria and polio-myelitis), and mortality rates sharply reduced as in the cases of tuberculosis, diphtheria and intestinal parasitism.⁵⁷⁾ This is no doubt the result of the rapid expansion of medical facilities in the 1970s. The increase in the number of physicians is even more remarkable considering that it has been estimated that more than half of the active physicians in 1958 have left the country.⁵⁸⁾ The success in health services has been particularly noticed in the rural areas. Medical treatment is totally free and newly graduated doctors have to do at least two years obligatory service in the countryside. At the same time as the administration of health has been centralized, its execution has been very much decentralized. Medical care has been provided free side-by-side with the active mobilization of the population to attain massive immunization, blood donations, the clearing of garbage dumps and similar activities, in most cases organized by the numerous Committees for the Defence of the Revolution.⁵⁹⁾

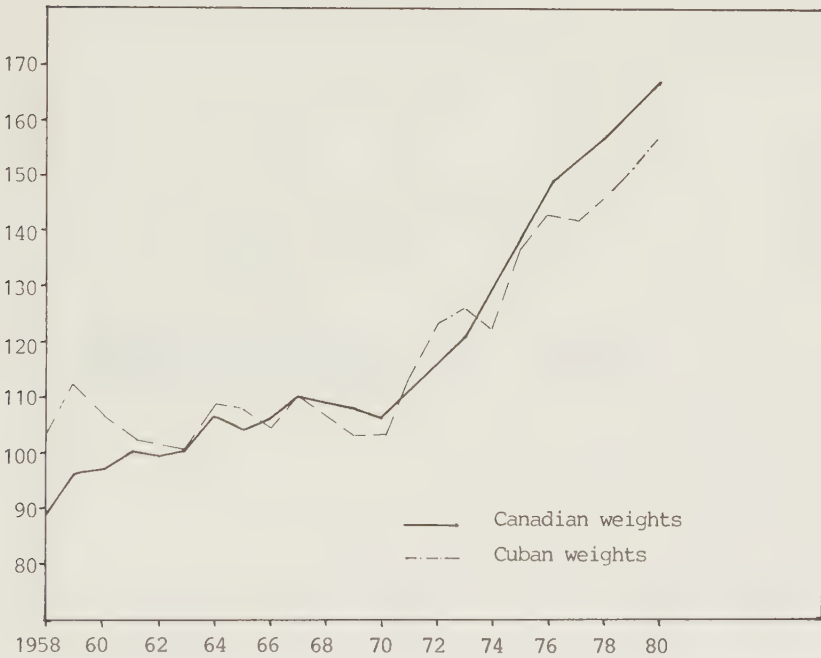
IV.8 A Composite Index of Basic Needs Performance

The indices calculated for the five different basic needs categories can be summarized in a composite index of basic needs performance in Cuba. In the case of the index measured in Canadian prices, the composite index is simply the result of the sum of the expenditures in the five categories (see Appendix Table 28 B). In the case of Cuban prices the five indices have been weighted by actual expenditures in 1965 (see Appendix Table 28 A) taken from official figures, except in the case of housing (for which official data are not available) where I have simply used my own expenditure estimates based on shadow prices. The result of these calculation is shown in Tables IV.10A & IV. 10B. and is also illustrated graphically in Figure IV.7.

A comparison of the two indices shows that per capita expenditures on basic needs were 52 percent higher in 1980 than in 1958 if measured in Cuban prices, but 88 percent higher if Canadian prices are used. The reason is mainly that food expenditures (which have relatively low weights in Canada) have increased at a lower rate than education and health expenditures (which have relatively higher weights in Canada). This is not a surprising result. The same findings have been drawn in international comparisons of real products and purchasing power. On such report, for instance, states that "the income of one country relative to another will usually appear higher when its quantities are valued in the other country's prices than when valued in its own prices"⁶⁰.

The composite index clearly shows that the Cuban basic needs performance, as measured by per capita expenditures, rapidly improved during the first two or three years after

Figure III.7 Composite Basic Needs Performance Indices, 1958-1980



Source: Tables IV.10A & IV.10B.

the Revolution. After 1962, however, there is a period of relative stagnation and even decline during some years, a period which lasts until 1970. Then follows a period of sustained growth which during the rest of the decade. This description also very well fits the growth trend of Total Material Production (TMP) discussed in Chapter II and III. One might argue that this is just a logical result because of the method used, with food and clothing expenditures included in both aggregates. However, even if food and clothing are excluded in the composite index there is still a striking resemblance of the growth trends as shown in Table IV. 9

Table IV.9. A Comparison of Per Capita Growth Rates of TMP and Basic Needs, 1958-1980

<u>Periods</u>	<u>Annual Average Rates of Growth</u>			<u>Combined Index</u> (Cuban Weights)
	<u>TMP/capita</u> (Cuban Weights)	<u>Basic Needs (Excl. Food & Clothing)</u> (Cuban Weights)	<u>(Canadian Weights)</u>	
1958-1961	0.8	5.0	6.3	1.7
1961-1965	-0.2	1.6	2.3	0.2
1966-1970	1.6	-0.1	0.0	1.2
1971-1975	8.2	9.1	7.2	8.5
1976-1980	2.9	3.1	3.3	3.0

Source: Appendix Tables 5, 7, 9 & 28

This goes especially for the 1970s when the growth rates are almost identical. The interesting deviation from this pattern is the very first period after the Revolution when basic needs expenditures increased at a faster rate, especially if measured in Canadian prices.

The fourth column in the table finally, shows a weighted average of the growth trend of TMP and the Basic Needs Index combined. In a way it could be seen as a substitute for an index of Gross Domestic Product since it both includes production and services (except for transport, communication, trade and part of the public administration). Such a weighted "total performance index" indicates that per capita growth was sluggish during most of the first decade, then reached an exceptionally high level of growth during the first half of the second decade, and with the rate falling to about 3 percent during the latter half.

The World Bank has estimated that the Cuban Gross National Product in 1979 amounted to 1410 current US dollars⁶¹. If GNP per capita is reflected by the growth rate of the combined index of TMP and Basic Needs, it could be estimated that per capita GNP increased from about 743 dollars in 1958 to 1421 dollars in 1980 (measured in 1979 US dollars), with an average annual per capita rate of growth of 2.9 percent.

Table IV. 10A A Composite Basic Needs Index for Cuba,
1958-1980 (Cuban weights) (1963=100)

	Food & Beverages	Clothing	Housing	Education	Health	Total
1958	112.1	105.2	93.2	56.7	97.4	102.5
59	120.8	126.7	94.7	64.1	103.3	112.3
1960	119.0	100.4	98.3	69.1	101.3	107.3
61	117.3	72.0	99.9	89.6	97.6	102.9
62	105.7	93.1	100.2	94.5	100.3	101.3
63	100.0	100.0	100.0	100.0	100.0	100.0
64	108.8	117.7	98.1	116.2	102.6	109.4
65	107.5	117.8	98.2	103.6	104.3	107.6
66	110.9	87.9	98.2	101.9	108.6	103.9
67	121.8	88.0	97.9	103.4	113.1	110.0
68	115.8	85.5	97.7	102.0	110.4	106.1
69	112.7	74.3	97.5	102.8	115.4	102.6
1970	114.1	73.7	96.9	104.2	104.5	102.7
71	127.5	88.6	96.1	110.1	106.3	113.2
72	136.5	101.2	95.8	137.2	109.8	122.8
73	136.7	101.2	96.0	159.8	122.9	125.7
74	135.9	91.9	96.1	191.7	135.8	121.6
75	140.4	108.1	96.3	230.9	145.8	136.4
76	140.0	108.9	96.3	299.6	158.4	142.9
77	130.3	108.9	97.0	325.8	176.8	141.1
78	137.9	103.4	97.3	337.2	182.0	145.4
79	140.2	119.6	98.3	349.6	185.1	151.1
1980	149.5	117.4	100.4	350.8	189.3	156.3

Source: Appendix Table 23A

Table IV. 10B. A Composite Basic Needs Index for Cuba,
1958-1980 (Canadian weights) (1963=100)

	Food & Beverages	Clothing	Housing	Education	Health	Total
1958	108.3	105.2	93.2	52.6	94.9	88.6
59	115.7	126.7	94.7	64.5	100.7	96.0
1960	114.7	100.4	98.3	70.7	99.8	97.0
61	113.8	72.0	99.9	87.0	96.9	99.9
62	105.6	93.1	100.2	91.8	99.4	99.6
63	100.0	100.0	100.0	100.0	100.0	100.0
64	108.4	113.9	99.1	111.7	103.8	106.5
65	110.1	98.6	98.2	100.5	106.5	104.0
66	114.9	95.3	98.2	101.0	111.1	106.2
67	122.3	105.2	97.9	101.8	117.4	110.0
68	120.2	101.0	97.7	103.2	115.2	109.2
69	113.4	95.9	97.5	104.0	120.4	107.6
1970	115.9	82.2	96.5	103.0	107.7	105.6
71	122.7	96.0	96.1	110.5	111.1	110.7
72	125.5	107.8	95.8	122.9	114.2	115.6
73	127.2	116.3	96.0	134.4	129.5	121.4
74	133.0	111.6	96.1	153.0	141.4	129.6
75	137.2	125.8	96.3	174.8	153.3	138.8
76	138.1	116.9	96.3	204.6	166.7	148.2
77	127.8	113.1	97.0	225.0	184.5	152.5
78	134.9	114.4	97.3	230.2	190.4	157.1
79	134.8	126.9	98.3	241.5	193.2	161.0
1980	150.7	112.7	100.4	241.7	197.0	166.8

Source: Appendix Table 23B

NOTES TO CHAPTER IV

1. See, for instance, Amaru & Mesa-Lago (1971), and Barkin (
2. Seers (1974).
3. Hicks & Streeten (1979).
4. ILO (1977), pp. 191-192.
5. Hicks & Streeten (1979).
6. See, for instance, Beckerman (1966).
7. Clark (1940); Gilbert & Kravis (1954); Beckerman (1966); and Kravis et al. (1978).
8. Stone (1975).
9. Seers (1972).
10. Morris (1979).
11. See, for instance, Larson & Wilford (1979).
12. Morris (1979), pp. 138-145.
13. Larson-Wilford (1979).
14. Hicks & Streeten (1979).
15. Idem., p. 577.
16. Idem., p. 578.
17. See Usher (1981), p. 186.
18. "Distribución total del comercio al por mayor de productos alimenticios", and "Distribucion total del comercio al por mayor de productos industriales", AEC 1979, pp. 135, 137, 138; AEC 1974, pp. 177-179; BEC 1971, pp. 20-209.
19. A check with one of the rare official Cuban references to the availability of food indicates that my estimates might be somewhat under-estimated. A report by the Cuban Central Bank in 1975 has some figures showing per capita availability of selected food products for 1970 and 1974 (Banco Nacional de Cuba, 1965). These figures coincide more or less with my own estimates with respect to meat and fish but are about 20 percent higher in the case of cereals, fruits, vegetables and tubers. I do not know the exact reason for these discrepancies but one likely reason is that my figures do not include es-

timates for autoconsumption by the independent farmers and their families which accounted for about 10 percent of the population in 1974.

20. Lista Oficial de Precios, Comité Estatal de Precios, Havana, 1981.
21. For a comparison of prices on the rationed parallel and black markets, see Mesa-Lago (1981), p. 163.
22. CERP (1965), pp. 536-537.
23. BEC (1968).
24. AEC (1979).
25. Castro (1976).
26. Knippers (1976), p. 405.
27. CERP (1965), p.
28. The area planted with cotton increased from less than 150 hectares in 1958 to 3 600 hectares in 1959 in an effort to allocate new areas to import-substituting crops (Seers, 1964, p. 116). The peak was reached in 1967 when the cotton planted area embraced 13 970 hectares yielding an output of 3 660 tons of cotton compared with an import in the same year of 16 730 tons of cotton fibres (BEC 1968, pp. 29-30 and BEC 1971, p. 227). There are no figures on domestic output of cotton after 1968 which presumably means that there has been no increase, and an indicator is that some 38 000 tons of cotton fibres were imported as late as in 1977 (AEC 1979, p. 172).
29. Usher (1981), p. 129.
30. The president of Juceplan, Humberto Pérez, said in an interview in February 1979 that about 25 000 dwellings a year were falling apart due to lack of repair (see Pérez: 1979). I have been told, however, that this does not mean that these dwellings are demolished (interview with Dr Fidel Vascos, President of CEE, Havana, 28 April, 1981).
31. Based on information on emigration of doctors during the first years after the Revolution, in Martínez Junco (1967) and graduation of medical students in the same period.
32. Griffiths (1979).
33. CERP (1965), p. 476.
34. Griffiths (1979).
35. Idem.

36. Mesa-Lago (1971).
37. Idem.
38. Castro (1980).
39. Griffiths (1979).
40. Latin American Economic Report (April 1979).
41. CERP (1965), p. 477.
42. Usher (1980), p. 130.
43. Minrex (1966), p. 120.
44. Mesa-Lago (1968).
45. Mesa-Lago (1981), p. 164.
46. Chadwick (1975).
47. Idem.
48. Seers (1964).
49. According to Mesa-Lago (1981), p. 164.
50. Figure given to the author by Dr Fidel Vascos, President of CEE, Havana, 28 April, 1981.
51. Valdés (1972), p. 429.
52. Castro (1980), p. 26. This achievement is even more impressive considering that only 25.6 percent of the adult education had six years schooling or more in 1953, see Seers (1964), p. 328.
53. Usher (1981).
54. Idem.
55. Terry (1975).
56. World Bank (1981).
57. Ministerio de Salud (1980).
58. Castro (1975), p. 130.
59. Leyva (1972), p. 495.
60. Kravis et al (1978), p. 248.
61. The World Bank (1981), p. 135.

CHAPTER V. DISTRIBUTION OF INCOME AND CONSUMPTION

V.1 The Income Distribution before 1959

An important aspect of basic needs oriented strategy is the distribution of income as well as of goods and services. Although there are no official figures to support the claim that a radical redistribution of incomes and assets has taken place in Cuba since the Revolution, few observers of contemporary Cuba seem to doubt it. As a matter of fact, Dudley Seers considers that "the degree of equality in Cuba is now probably unique"¹, and Robert Bernardo even argues that Cuba "is the first (country) to institutionalize the communist or egalitarian rule of production and distribution"². Although those claims may be somewhat exaggerated, they nevertheless reflect the large number of redistributive reforms and laws enacted immediately after the Revolution. However, before discussing the effects of those reforms it is of interest to get at least some idea of the income situation in Cuba before the Revolution.

There are no official estimates of the distribution of income and assets in pre-revolutionary Cuba, and nor have there been any unofficial estimates to my knowledge. What is evident, however, is that the distribution was very skewed, although not necessarily more skewed than in the rest of Latin America. Arthur MacEwan, for instance, has for a crude estimate of the Cuban Pre-revolutionary income distribution simply taken the average quintile distribution for Mexico, Argentina and Puerto Rico³. I have myself tried to estimate the income distribution around 1953, setting out from the Census of that year (which gives a detailed breakdown of the economically active population by branch and occupation). I have then ascribed each occupational and branch group with an estimated annual

income derived mainly from a wage and salary survey done in Cuba in 1955⁵, and scattered information for other income groups gathered from a series of their books and publications. The result of this exercise is shown, together with MacEwan's hypothetical estimate, in Table V.1.

Table V.1 Estimates of Cuban Income Distribution before 1959

<u>Deciles</u>	<u>Hypothetical Family Income (1959)</u>		<u>Wages and Salaries (1953)</u>	
	<u>%</u>	<u>Cumulative %</u>	<u>%</u>	<u>Cumulative %</u>
0-10	5.7	n.a.	0.6	0.6
11-20		5.7	1.5	2.1
21-30	8.9	n.a.	1.9	4.0
31-40		14.6	2.5	6.5
41-50	12.5	n.a.	4.3	10.8
51-60		27.1	6.8	17.6
61-70	18.3	n.a.	10.6	28.2
71-80		45.4	13.9	42.1
81-90	54.6	n.a.	19.1	61.2
91-100		100.0	38.8	100.0
(Top 5%)	n.a.		(26.5)	-
Gini coefficient*		0.47		0.55

* The Gini coefficient is a measure of the degree of inequality represented by the Lorenz curve (see figure V.1). In the case of perfect equality the coefficient (G) is zero, and in the opposite case, that of total inequality, it is one. The Gini coefficient is defined by the formula:

$$G = 1 - \sum_{i=1}^n f_i (g_{i-1} + g_i) / 10\ 000, \text{ where}$$

n=the total number of income groups

i=the ordinal number of each group

f=the percentage of the population in each income group

g=the cumulative percentage of income received

Source: Hypothetical distribution: MacEwan (1981), p. 229, 1953 distribution: Appendix Tables

The estimated income distribution in 1953 is a slightly modified version of an earlier estimate by the author. The major difference is that I have incorporated more information for the lower quintile and the upper decile groups which were very crudely estimated in the earlier version⁷. As regards the lowest quintile, I had originally made the assumption that those who declared that they were looking for work when the census was taken (1953) did not receive any income during that year which, however, does not seem plausible. Instead I have now assumed that those people, including those who were employed but without work at survey date (see Table V.2), earned 100 pesos, or roughly one fifth of the minimum wage. The only labour force assigned zero income are thus those working without pay for a relative.

Table V.2 Employment and Unemployment, 1953

	Urban		Rural		Total	
	(000)	%	(000)	%	(000)	%
Employed with pay	1 069.9	86.6	709.3	86.1	1 779.2	86.4
Working without pay for a relative	33.8	2.7	48.7	5.9	82.5	4.0
Employed but without work at survey date	12.7	1.0	11.4	1.4	24.1	1.2
Looking for work	119.4	9.7	54.4	6.6	173.8	8.4
Total labour force	1 235.9	100.0	823.7	100.0	2 059.7	100.0

Source: Censo de Población, Viviendas y Electoral, 1953, quoted in Mesa-Lago (1968), p. 374

The annual income estimated for the lower quintile may seem rather arbitrary but it is based on the evidence that 8.8 percent of the labour force were working less

than 19 weeks per year, and no less than 16.6 percent were working less than half the year⁸. The size of unemployment and underemployment was thus conspicuous in pre-revolutionary Cuba, and probably the situation was even worse than the figures in Table V.2 indicate since the census was taken in January, when the sugar crop was under way⁹. The income share of the lower quintile is rather an overestimate than an underestimate considering that the average annual income of agricultural workers in 1957 was only 92 pesos, according to a survey done by the Catholic University in Havana¹⁰. Jacques Chonchol has in another study estimated that one third of the populace received roughly 5 percent of the income in 1953, a figure which very closely coincides with my own estimate¹¹.

As regards the upper decile my earlier estimate was based on a much too conservative assumption of average income in the higher income brackets. There are reports claiming that annual income of, for instance, big land lords was about 40 000 pesos on the average¹². The figures in the upper percentile has thus, accordingly, been adjusted upwards, affecting slightly the total distribution of income. The skewness of the distribution, as measured by the Gini coefficient, remains almost the same, however, or 0.55 as compared with 0.56 in the earlier estimate.

V.2 Income Distribution in the 1960s

Raising the living standards of the rural proletariat was one of the first priorities of the Revolutionary Government after coming into power in January 1959. The Agrarian Reform was, of course, important in this respect but the Government also almost immediately raised the living standard of some 350 000 braceros (cane-cutters) by offering them stable jobs and by almost doubling their annual income¹³. It has been estimated that total money wages rose from about 550 million pesos during the first nine months of 1958 to over 1 billion pesos during the corresponding period in 1961¹⁴, an increase corresponding to about 20% of the average national income of 1959 and 1960¹⁵.

René Dumont says that wages in the rural areas increased by about 20% during the first two years and he warned that this "dangerous generosity" on the part of the Cuban revolutionaries would be bound to create an inflationary situation, unless production increased at the same rate¹⁶. And in retrospect it seems that the Cuban leadership too had second thoughts about this very drastic increase in the purchasing power of the poorer classes or as Che Guevara said in July, 1963,

"as regards income distribution, we gave from the first moment emphasis to satisfying social needs, paying more equal wages and salaries and increasing employment without sufficiently taking the state of our economy into consideration".¹⁷

But it was not only the rise in wages and salaries that explained the rapid increase in purchasing power of at least the bottom half of the income earners. According to one study, various decrees and measures in

1959 implied an increase in purchasing power of 382.5 million pesos in that year alone, of which 150 million pesos was as a result of wage increases, 80 million due to the reduction in rents, 100 million because of the general suppression of gambling (which had been an important activity in pre-revolutionary Cuba), 15 million due to lower prices for medicine, and another 15 million pesos as a result of the reduction in electricity rates¹⁸.

In estimating the income redistribution that took place during the first redistributive phase of the revolution the problem is that there are no official figures for income distribution in Cuba and in trying to estimate income distribution I have had to resort to average annual income figures by sector published after 1962¹⁹. Table V.3 gives an estimate of the income distribution in Cuba in 1962. This year has been chosen because it is the only year in the 1960s for which there exist figures for the private sector at that time still important in size, accounting for about 40 percent of the civilian labour force²⁰. The state sector data are from official Cuban statistical sources and the wage data for the private sector are taken from an unofficial estimate by Juceplan from 1963²¹, and the corresponding private sector employment estimates are given in an official Cuban publication from 1966²². All the data, however, refer to 1962.

In estimating the distribution of income, the following method was adopted: the number of employed in each sector was divided into quartiles and then an average income in each quartile and in each sector was calculated on the assumption that there was a normal distribution within each sector with a range of income from 4 to 1. This latter assumption is arbitrary but other studies claim that a

Table V.3 Estimated Income Distribution, 1962

Deciles	Percentage share	Cumulative share	MacEwan's estimates of 1962 family income	
			alt.1(%)	alt.2(%)
0-10	2.5	2.5		
11-20	3.7	6.2	11.4	9.5
21-30	4.8	11.0		
31-40	6.2	17.2	14.6	12.2
41-50	6.8	24.0		
51-60	9.5	33.5	16.1	13.5
61-70	12.0	45.5		
71-80	13.1	58.6	18.3	18.3
81-90	18.4	77.0		
91-100	23.0	100.0	39.6	46.5
(Top 5%)	(12.7)	-		
Gini coefficient	0.35	-	0.27	0.35

Source: Appendix Table 30

Table V.4 Estimated Average Annual Income by Income Groups,
1953 and 1962 (current pesos)

Deciles	Total personal incomes (000 pesos)		Average incomes (current pesos)	
	1953	1962	1953	1962
0-10	12 596	55 506	61	250
11-20	31 489	82 149	153	370
21-30	39 886	106 572	194	480
31-40	52 481	137 656	255	620
41-50	90 268	150 977	438	680
51-60	142 750	210 924	693	950
61-70	222 521	266 431	1 080	1 200
71-80	291 797	290 853	1 417	1 310
81-90	400 959	408 527	1 947	1 840
91-100	814 512	510 659	3 955	2 300
(Top 5%)	(556 304)	(111 013)	5 300	
Total/ Average	2 059 659	2 220 255	1 019	1 255

Sources: Appendix Tables 29 & 30

span of 3 to 1 covered the great majority of the wage and salary rates²³. This wage differential, however, was only beginning to be introduced during 1962 and 1963, along lines similar to those practised in the Soviet Union and China²⁴. It is thus doubtful that the effects of these new wage scales had been fully applied already in 1962 and for this reason it has been assumed that the wage span was somewhat larger in that year.

The resulting distribution in Table V.3 indicates that there was a massive redistribution of income taking place immediately after the Revolution, and it is estimated that the lowest 40 percent of income earners increased their share from 6.5 percent before the Revolution to 17 percent by 1962. There can be no doubt that the rural proletariat was the major group to benefit. Surveys conducted between 1958 and 1961 show that the share of the rural workers earning more than 75 pesos a month increased from 28.8 percent in April 1958, to 34.2 percent in April 1959, and to 44.2 percent in the same month in 1960²⁵. The Labour Census of April 1960 showed that 49 percent of those interviewed earned less than 81 pesos per month, 16.7 percent between 81 and 101 pesos, 6.7 percent between 101 and 121 pesos, 11.2 percent between 121 and 151 pesos, 15.4 percent between 151 and 500 pesos, and only 0.7 percent earned over 500 pesos per month²⁶.

It should be pointed out that the figures in Table V.3 refer to the distribution before taxes. If taxes were to be deducted, the distribution would be even more egalitarian since there were many tax laws passed during the first years. The Tax Reform Law of July 1959, however, mainly affected consumption of the higher income brackets through substantial increases of taxes

on luxury goods and services while the income tax, a flat 3 percent tax, still remained remarkably low. It was only in August 1960 that a progressive income tax was introduced for the first time in Cuba, only exempting people earning less than 200 pesos per month²⁷.

O'Connor has estimated that as a result of redistribution and employment creation there was between 1958 and 1961 an increase in real income of the order of 30 to 40 percent for perhaps 80 percent of the Cuban labour force²⁸. This claim also seems to be partially substantiated by the figures in Table V.4 which show the wage total and average wage in each decile income group in 1953 and 1962. My estimate indicates that at least 60 percent of the labour force benefitted from the reforms and the real average wage for the bottom 40 percent probably doubled. The figures also imply that about 300 million pesos (or about 15 percent of the total incomes) were redistributed from the upper quintile to the lower three quintiles, which, incidentally, is the same as the estimate given by Felipe Pazos²⁹.

MacEwan has in the study quoted earlier also made some crude estimates of distribution of family income in 1962 (see third and fourth column in Table V.3). MacEwan has made two estimates based on different assumptions. As seen there is a rather close agreement between his lower estimate (fourth column) and my own, although, he may have somewhat overestimated the share accruing to the bottom quintiles.

V.3 Income Distribution in the 1970s

In the period 1962-1973 there was no doubt a drive towards narrowing income differentials, especially after the victory of moral over material incentives proclaimed at the Twelfth Workers' Congress in 1966 (see page 76). But this is not the same as saying that existing wage scales actually changed. In fact, the same wage scales that were introduced in 1962-1963 were still applied at the end of the 1970s and were replaced as late as in July 1980 (see table V.6). Egalitarianism in the 1960s was instead advanced through the elimination of bonuses, the renouncement of overtime pay and voluntary, unpaid mobilization campaigns³⁰. How much this really meant in egalitarian terms is difficult to evaluate but an estimate of income distribution in 1973 (the year of the Thirteenth Workers' Congress when material incentives were reinstated) based on the same methods as the 1962 estimate except for the exclusion of the private sector³¹, shows that a rather insignificant redistribution took place, at least in relation to the 1959-1961 period (see Table V.5). The major group to benefit in this period were again the agricultural workers. Their average annual income (in the state sector) increased from 954 pesos in 1962 to 1416 in 1973 as compared with an increase in the industrial average from 1941 to 1 603 pesos in the same period³². One explanation could be that agricultural workers were promoted to higher grades on the applicable wage scale at the same time as new industrial workers were placed in lower grades.

Looking at the trend during the latter half of the 1970s one would perhaps expect a regressive redistribution of income as a result of the new policy of

Table V.5 Income Distribution Estimates, 1973 and 1978

Deciles	1973		1978			
	(A)		(B)		(C)	
	(Excl.private sector)		(INCL.private sector)		Alt.estimate	
	%	cum. %	%	cum. %	%	cum %
0-10	2.9	2.9	3.4	3.4	5.1	5.1
11-20	4.9	7.8	4.4	7.8	5.9	11.0
21-30	5.4	13.2	5.3	13.1	6.5	17.5
31-40	7.1	20.3	7.1	20.2	7.3	24.8
41-50	8.7	29.0	9.3	29.5	8.0	32.8
51-60	10.5	39.5	10.4	39.9	8.5	41.3
61-70	12.5	51.5	12.6	52.5	9.9	51.2
71-80	13.5	65.0	14.1	66.6	12.8	64.0
81-90	15.1	80.1	15.3	81.9	14.9	78.9
91-100	19.9	100.0	18.1	100.0	21.1	100.0
(Top 5%)	(9.5)		(9.5)		(11.0)	
Gini coefficient	0.28		0.27		0.25	

Sources: AEC 1979, p. 58, Table V.6 and Appendix Tables.

encouraging productivity increases through material incentives. However, an estimate of the income distribution in 1978 (based on the same method as before but including the private sector) shows that the income differentials remained almost the same as in 1973, although increasing slightly for the bottom decile. But probably the assumption of a constant 4 to 1 wage span in each of the sectors over time is unrealistic. Since the wage scales did not change between 1963 and 1979 it would seem that the only redistribution that took place in this period was as a result of movements of workers upwards or downwards (and in most cases upwards one has to assume) the existing wage scale. I have thus opted for making an alternative estimate for 1978 based on the distribution of the state civilian labour force affected by the various wage scales (information not available for 1973).

I have then applied a hypothetical distribution of the number in each category by grades within each wage scale (the different wage scales are shown in Table V.6). This hypothetical distribution is based on Mesa-Lago's estimate of distribution of the work force within each wage scale in the mid-1960s³³, with the important distinction that I have assumed that there were by 1978 no longer any workers in grade 1³⁴. The result of this alternative estimate of income distribution in 1978 shows, perhaps surprisingly, a more egalitarian distribution than using the other assumption (a 4 to 1 differential in each sector). One reason may be that the wage scales do not include bonuses and overtime pay (which were virtually abolished between 1966 and 1973) and the conclusion could be that the real income distribution in 1978 lies somewhere in between the estimates B and C.

An interesting question is how the new wages scales now being introduced in Cuba (see Table V.6) are likely to affect the existing distribution of income. One would perhaps expect a widening of the differentials in line with the new policy (after 1973) of reward according to work accomplished. The new wage scales as such, however, do not point in this direction. As seen, there is a narrowing gap between the highest and the lowest wage paid in each category, and in the case of the highest paid categories, technical personnel and executives, the gap has narrowed considerably, with an upper ceiling of 450 pesos. What is important, however, is that these are the basic wages applied, not including bonuses, overtime pay and other fringe benefits. But even if those extras were included it is not at all sure that this would mean a regressive income redistribution since the material incentives apply to the least paid as least as much as to those at the top of the wage scale. Another fact is that

Table V. 6

Wage Scales Applied in Cuba between 1963-1979 and after 1980 (pesos per month)

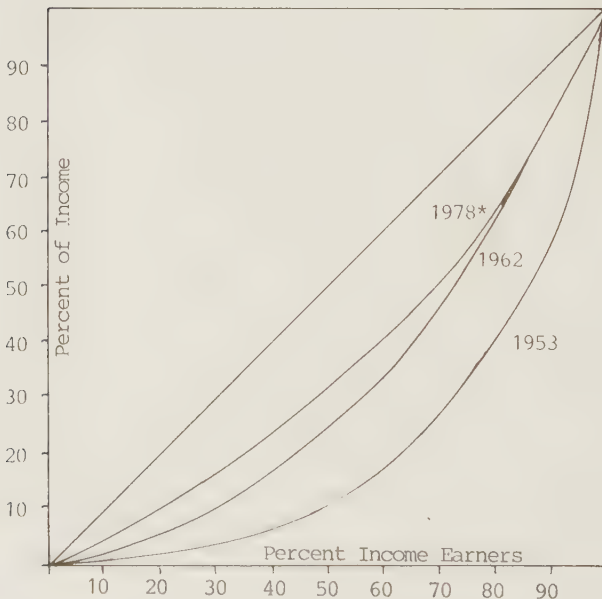
Grades	Agricultural workers		Non-Agricultural workers		Administrative and Service Personnel		Technical Personnel		Executives	
	Old Wage Scale	New Wage Scale	Old Wage Scale	New Wage Scale	Old Wage Scale	New Wage Scale	Old Wage Scale	New Wage Scale	Old Wage Scale	New Wage Scale
1	71	82	82	93	75	85	-	-	-	-
2	80	95	95	107	86	97	-	-	-	-
3	91	111	111	122	100	111	-	-	-	-
4	107	128	128	141	118	128	118	128	100	111
5	124	-	151	162	138	148	138	148	118	128
6	145	-	177	187	163	171	163	171	138	148
7	170	-	208	217	192	198	192	198	163	171
8	-	-	250	-	211	-	211	211	192	198
9	-	-	-	254	-	231	231	231	211	211
10	-	-	-	-	-	-	250	250	231	231
11	-	-	-	-	-	-	275	260	250	250
12	-	-	-	-	-	-	300	280	275	260
13	-	-	-	-	-	-	325	295	300	280
14	-	-	-	-	-	-	350	310	325	295
15	-	-	-	-	-	-	more than 350	325	350	310
16	-	-	-	-	-	-	-	370	more than 350	more than 350
17	-	-	-	-	-	-	-	385	370	370
18	-	-	-	-	-	-	-	400	-	385
19	-	-	-	-	-	-	-	425	-	400
20	-	-	-	-	-	-	-	450	-	425
21	-	-	-	-	-	-	-	-	-	450
22	-	-	-	-	-	-	-	-	-	-

Source: Comité Estatal de Trabajo y Seguridad Social (Resolucion No 476)

the so-called "historical wage" (applicable to those persons who had higher wages before the introduction of the new wage scales in 1962) has gradually lost its importance³⁵. In 1962 no less than 79.9 percent had the right to such compensation but by 1972 this share had fallen to 18.9 percent, and by the end of the 1970s the share was probably less than 10 percent³⁶.

To sum up, it is quite clear that there has been a radical redistribution of income in Cuba after the Revolution with the major transfer of income to the bottom quintiles during the first years after 1959 and with more moderate transfers during the latter part of the 1960s and the 1970s. This trend is illustrated by so-called Lorenz curves in Figure V.1 below.

Figure V.1 Estimated Income Distribution in Cuba in 1953,
1962 & 1978 (Lorenz curves)



*) Estimate C in Table V.5.

Source: Tables V.1, 3 & 5.

V.4 The Distribution of Consumption

The income distribution in a country does not, however, necessarily give a true picture of the standard of living of various income groups. The figures in the preceding tables tend to exaggerate the standard of living of the upper quintiles since, after 1962, there were only limited possibilities to spend extra income due to the rationing introduced in that year for most consumer goods. On the other hand, the figures also tend to underestimate the standard of living of the same upper income groups since many people in this category also have other benefits connected with their work, such as free cars, travelling abroad etc (for instance, in the case of technicians, executives and military staff).

In the absence of published material on the distribution of consumption in Cuba³⁷, I have done a small survey of my own. It does not pretend to be a true reflection of actual consumption patterns in Cuba, but I have selected five households that represent different family compositions and different income groups. I simply asked these households to make detailed annotations of all their expenditures, day by day, during the month of November in 1980. A summary of the result is shown in Table V.7.

The characteristics of the households were as follows:

Household A

Divorced mother, university teacher, monthly salary 248 pesos, two children, 9 and 15 years old.

Household B

The woman is a primary school teacher, monthly salary 180 pesos. The man is factory worker, monthly wage 127 pesos two children, 7 months and 6 years old.

Household C

The woman is a housewife. The man is a long-shoreman, monthly wage 138 pesos, but often works overtime and in November, 1980 he earned 169 pesos, three children, 2, 5 and 7 years old.

Household D

Retired worker living on his pension (65 pesos), no children.

Household E

Female textile worker living alone, no children.

Table V.7 Distribution of Family Expenditures by Income Groups and Family Size, Havana, November, 1980

	<u>Household</u> A	<u>Household</u> B	<u>Household</u> C	<u>Household</u> D	<u>Household</u> E
<u>Number of family members:</u>	3	4	5	1	1
<u>of which:</u>					
adults	1	2	2	1	1
children	2	2	3	-	-
income-earners	1	2	1	1 (retired)	1
<u>Monthly income (pesos)</u>	248+50*	180+128	169	65	90
<u>Distribution of expenditures (pesos):</u>					
Food	69.96	74.80	99.84	18.95	46.25
Rent	-	30.00	-	-	-
Electricity & Gas	14.90	10.92	13.95	1.85	8.55
Telephone	6.25	-	6.25	-	-
Transport	6.80	10.40	6.00	-	2.00
Meals outside + Beverages & Tobacco	24.15	43.80	0.90	44.05	3.05
Books & Newspapers	9.00	4.10	1.50	-	-
Other expenditures**	51.80	96.90	6.60	0.26	10.60
<u>Total</u>	182.86	270.92	135.04	65.11	70.45
<u>Savings***</u>	115.14	37.08	33.96	-	19.55

* Allowance for children from ex-husband

** Clothes, pocket money to children, leisure

*** Monthly income - Expenditures

Source: Survey by the author in Havana, November, 1980.

Table V.8 Examples of Monthly Wages in Havana, April, 1979

<u>Monthly wage/salary</u>		<u>Monthly wage/salary</u>	
Specialized Physician	350	Cook	128
Physician	250	Cook's aid	95
Engineer	250-300	Chauffeur	138
University teacher	248	Ballet Dancer Cat. A	138
Accountant	211	Ballet Dancer Cat. B	163
Primary School Teacher	180	Secretary Cat. A	138
Head of Personnel	163	Cat. B	118
Longshoreman - Cat. A	163	Cat. C	100
Longshoreman - Cat. B	138	Cat. D	86
		Receptionist	86

Source: Information collected by the author in Havana, April 1979.

The people with income included in this survey have wages or salaries ranging from 65 pesos in the case of the retired worker to 248 pesos in the case of the university teacher, wages which fall reasonably well within the range of wages listed in Table V.8. What is perhaps the most interesting finding of this survey is that all, except the retired worker, had money in excess by the end of the month. The cost of food (except meals outside the home) accounts for a percentage of the total income ranging from 23 percent to 53 percent (in the case of the five-members family). Asked what the families did with surplus money the answer was in all cases that it was saved for the annual vacation or for future purchases of consumer durables.

That the food expenses account for such a relatively small share of the total income of the households is easy to understand if one looks at the price examples in Table V.9. As mentioned before the prices on rationed food have more

Table V.9 Prices of Rationed and Liberated Consumer Goods in Havana, October 1980

<u>Product</u>	<u>Ration</u> (per family member and month)	<u>Price</u> (pesos/pound)
Rice	5 pounds	0.20
Black beans	1.25 --	0.17
Sugar	4 --	0.07
Beef	3/4 per nine days	0.55
Coffee	0.125 pounds	1.05
Lard	1.5 pounds	0.24
Butter	Free	2.40
Milk	1 litre to children under 7/per day	0.20/litre
Canned Milk	3 cans	0.20/can
-- --	6 to children between 7-14	
Bread	Free	0.15
Eggs	Free	0.08/piece
Fish	Free	0.40-0.60/kg
Beer	Free	0.60-1.20/bottle
Matches	Free	0.05/box
Cigarettes	4 packages + free sale on parallel market (adults only)	0.20(ration); 1.60-1.80 (parallel market)
Wine (Bulgarian)	Free	6.00-8.00/bottle
Rum (Havana Club)	Free	16.80
Tooth paste	Free	0.65-1.00/tube
Radio	Free	50-150/unit
TV-set	Free	750-900
Refrigerator	Free	700-800

Source: Information collected by the author in Havana, October, 1980

or less remained the same since 1962 although the gradual liberation of many food product, now sold at the "parallel" market, has probably implied that a relatively higher share of the family income is now being spent on food than some years ago. However, as late as in 1980 it was claimed that government subsidies on food (including both retail sales and subsidized meals in the work places) amounted to 25 pesos per capita and month³⁹.

V.5 Regional Differences in Income and Consumption

Finally, a few words should be said about regional difference with respect to income and consumption. Very little statistical is available as regards regional inequalities in Cuba before the Revolution but a safe assumption is that they were very large. A classical study by Lowry Nelson also on living conditions in rural Cuba in the 1940s support this assumption. According to a survey of Cuban farm families in 1945, which Nelson quotes, average yearly expenditure per household had regional difference ranging from 499 to 1 745 pesos⁴⁰.

Unfortunately, not very much information is available on regional differences in income and consumption after the Revolution. The only years for which detailed information is available are 1978 and 1979. Some of these data are shown in Table V.10. The figures reveal that the average income in the richest province, the City of Havana⁴¹, was 12 percent above the national average and 27 percent above the average income of the poorest province, Guantánamo. The most interesting finding is, however, that the differences in food consumption were larger than those in income. Thus, per capita food consumption was almost one third higher in the City of Havana than the national average, and 79 percent higher than in Guantánamo.

Although these differences are still alarmingly large, it is most likely that there has been a trend towards narrowing the gap after the Revolution. An indication of this is that it can be derived from the survey of 1960 earlier quoted that the average monthly income in the old province of La Habana (which included the City of Havana) was 14 percent above the national average, and 40 percent above the poorest province (the old Oriente province which embraced the new provinces Santiago de Cuba, Granma and Guantánamo)⁴².

Table V.10 Regional Differences in Income and Consumption, 1978/1979

<u>Provinces</u>	<u>Average Annual</u> <u>Wage/Salary 1978</u>		<u>Annual Per Capita Food</u> <u>Supply 1979</u>	
	Pesos	Index	Pesos	Index
<u>National Average</u>	1 680	100	201	100
City of Havana	1 874	112	266	132
Cienfuegos	1 770	105	186	92
Villa Clara	1 709	102	182	90
La Habana	1 693	101	236	129
Matanzas	1 683	100	225	112
Camagüey	1 645	98	232	115
Ciego de Ávila	1 627	97	176	87
Sancti Spiritus	1 608	96	157	78
Santiago de Cuba	1 608	96	184	91
Pinar del Río	1 560	96	191	95
Holguín	1 548	93	153	76
Las Tunas	1 545	92	140	69
Granma	1 486	88	159	79
Guantánamo	1 480	88	149	74

Source: AEC 1979, pp. 57 & 132

NOTES TO CHAPTER V

1. Seers (1974), p. 262
2. Bernardo (1971), p. ix
3. MacEwan (1981), p. 229
4. Censo de Población, Viviendas y Electoral, 1953
5. Survey by the US Embassy in Havana, quoted in US Department of Commerce (1956), Tables 95 and 96
6. Brundenius (1979:1)
7. I am greatly indebted to Oscar Pino Santos, Director of the Institute of Studies of the World Economy in Havana for drawing my attention to important documents on the income situation in Pre-revolutionary Cuba
8. US Department of Commerce (1956), p. 167
9. Mesa-Lago (1968:1), p. 375
10. Agrupación Católica (1972), p. 191
11. Jacques Chonchol, "Memorandum sobre el proceso de la Reforma Agraria en Cuba", quoted in Ritter (1974), p. 32
12. According to a report on the Cuban Land Reform presented to FAO, there were 894 latifundistas before the Revolution who had an average annual income of 40 000 pesos, see FAO (1966), p. 4
13. Castro (1975), p. 145
14. O'Connor (1970), p. 245
15. J-L Rodríguez (1979), p. 148
16. Dumont (1964), p. 43
17. Guevara (1977:Vol.7), p. 91
18. Minrex (1966), p. 60
19. Similar problems were encountered by Jane Chapman and Alec Nove in their studies on real wages and income distribution in the USSR and Eastern Europe, see Chapman (1963) and Foxley (1974), pp. 164-195
20. See Appendix Table 17
21. Proyecto de Anuario Estadístico 1962, quoted in O'Connor (1970), Table 4, p. 210
22. Minrex (1966), p. 58
23. See Bernardo (1971), pp. 69-71 and Seers (1974), p. 265

24. Bernardo (1971), pp 69-71
25. O'Connor (1970), p. 246
26. Seers (1964), p. 23
27. O'Connor (1970), p. 247
28. idem., p. 245
29. Pazos (1962), p. 7
30. See Mesa-Lago (1972:3)
31. The private sector only accounted for 11 percent of the civilian labour force in 1973 and its inclusion in the estimate probably would not affect the result very much
32. Brundenius (1979:2), Table 3
33. Mesa-Lago (1968:2), p. 94
34. I was told in November 1980 by people at the CEE that there were very few people in Cuba earning less than 85 pesos per month by the end of the 1970s and this is also confirmed by the new wage scales (see Table V.6)
35. The idea behind the "historical wage" was that wage- och salary-earner should lose with the introduction of the new wage-scales in 1962, but the "historical wage" was attributed to the individual as such, not to any particular occupational group
36. Castro (1975), p. 149
37. A Survey of Household Budgets in Havana was conducted in April 1980 but the results were not available by the finishing of this study
38. The typical lunch in a worker's canteen costs 0.50 pesos
39. Information given to author by Dr Carlos-Rafael Rodriguez, Vize President of Council of State and Ministers in Havana, 4 November, 1980
40. Nelson (1950), Table 217
41. There was a new territorial division in 1976 with 14 provinces. The City of Havana has earlier been part of the province of La Habana
42. Seers (1964), p. 23

CONCLUDING REMARKS

Cuba was deeply affected by the Depression in the 1930s with very adverse terms of trade which made the economy and living standards plunge into the lowest levels since the beginning of the century. The economy then slowly recovered and had by the outbreak of the Second World War almost reached pre-depression levels. Then there was a period of rather rapid growth during the 1940s, followed by declining growth rates in the decade leading to the 1959 Revolution.

In spite of many claims of the contrary, there is no evidence that the economic growth accelerated during the first years after the Revolution. Probably, per capita growth was not much higher than in the 1950s. As a result of insufficient installed capacity in the past and a massive redistribution of incomes during the first years, a discrepancy between available resources and needs soon appeared. In spite of increasing investment levels and higher shares going to productive areas, economic growth continued to be sluggish during most of the decade, and per capita income was probably only slightly higher in 1969 than in 1958. The 1970 zafra created disequilibria in the economy, with many sectors being neglected and much resources being wasted. During the first half of the 1970s, however, economic growth accelerated thanks to investments made during the past decade and, especially, new investments facilitated by favourable terms of trade, but the growth rate again declined during the latter part of the 1970s. It is estimated that per capita income grew at an average annual rate of 2.9 percent between 1958 and 1980 which means that the real product per capita almost doubled in the same period.

The most important aspect of economic growth in Revolutionary Cuba is perhaps not that of sustained economic

growth as such but that the economy today is much more diversified than before. The Cuban economy was in 1980 much more industrialized than two decades ago and an important process of import substitution has taken place, especially in the 1970s.

Cuba's dependence on sugar exports is still exceedingly large, however, and accounted for about the same share of total exports in 1980 as before the Revolution. On the other hand Cuba's dependence on exports as such seems to have diminished and the Cuban economy is not as vulnerable on fluctuations of world market sugar prices as before even if they still play an important role in determining the success or failure of the Five Year Plans (and the somewhat disappointing results of the 1976-1980 Plan is a case in point).

There was a strong impetus given to the satisfaction of the most basic needs of the population after the Revolution and especially basic education expanded during the 1960s. In other fields there was a stagnation or even decline during most of the decade but in the 1970s there was a virtual explosion in the expenditures devoted to basic needs, especially in secondary education, health and to a lesser extent food. Areas still seriously neglected are clothing and housing where the standards have barely surpassed the Pre-revolutionary levels even if the distribution of those needs no doubt is much more egalitarian today.

In terms of income distribution it is clear that there was a massive redistribution taking place immediately after the Revolution, and the redistribution continued in the 1960s and the 1970s although at a slower pace. New wage scales were introduced in 1980 that might affect income distribution in the longer run since more importance is given to bonuses, overtime and other fringe benefits linked to the

renewed priority given to material over moral incentives.

The most spectacular success of the Cuban revolution has no doubt been its commitment from the very outset to reduce inequalities between the countryside and the towns. Thus, while the average wage in agriculture in 1962 was only 49 percent of the average wage in industry, the difference between the sectors had narrowed considerably by 1978. During the same period housing construction was concentrated in the rural areas and so was the installation of electricity, piped water and sanitary facilities.

By the end of the 1970s almost 350 small communities had been created throughout the island to bring the rural population together. Special priority was given to the less densely populated areas. In almost 450 communities with a thousand people or more, special programs for urban development planning are under way and urban zoning plans provide the guidelines for future development. An integral part of this process has been the extension of compulsory secondary education to cover practically every corner of the country. These secondary schools operate according to the principle of half-time and half-time study, and all of the schools have their own agricultural land.

The programs to increase the levels of living of the rural people have no doubt helped to stem the flow of migrants to the big cities and today only about one-fifth of the population is concentrated in the big metropolitan areas. This success in equalizing the living conditions between town and village is perhaps one of the most important lessons to be drawn from the Cuban experience.

Appendix Table 1 Estimates of Cuban National Income, 1903-1939

Year	(A)	(B) *	(C) **		(D) ***	
			(C1)	(C2)	(D1)	(D2)
1903	193	1 837	324	176	na	na
1904	222	1 879	372	198	na	na
1905	264	1 927	439	228	443	230
1906	249	1 979	403	204	na	na
1907	250	2 034	383	188	356	175
1908	238	2 092	378	181	na	na
1909	300	2 154	444	206	450	209
1910	347	2 219	493	222	na	na
1911	295	2 287	445	199	424	185
1912	397	2 358	575	244	na	na
1913	379	2 431	543	223	540	222
1914	400	2 507	587	234	na	na
1915	519	2 585	747	289	na	na
1916	644	2 664	753	283	709	266
1917	678	2 746	577	210	na	na
1918	734	2 828	577	198	488	173
1919	862	2 912	622	214	535	184
1920	1 191	2 997	771	257	643	215
1921	588	3 083	602	195	na	na
1922	656	3 170	678	214	na	na
1923	761	3 257	756	232	795	244
1924	783	3 345	798	239	na	na
1925	708	3 432	684	199	na	na
1926	604	3 519	604	172	604	172
1927	648	3 606	679	188	na	na
1928	584	3 693	604	164	675	183
1929	571	3 778	599	159	644	170
1930	517	3 862	598	155	681	176
1931	392	3 946	537	136	621	157
1932	283	4 028	437	108	399	99
1933	294	4 109	446	109	441	107
1934	364	4 188	486	116	479	114
1935	435	4 264	544	128	563	132
1936	510	4 339	631	145	na	na
1937	614	4 411	711	161	866	196
1938	468	4 481	595	133	663	148
1939	488	4 547	633	139	734	161

(A) - Nominal National Income (million current pesos)

(B) - Estimated Population (thousand)

(C) - Alienes' Estimate of Real National Income:

(C1) Million 1926 pesos

(C2) Real National Income per capita

(D) - Alternative Estimate of Real National Income

(D1) Million 1926 pesos

(D2) Real National Income per capita

* = Estimates by Alienes

** = Nominal NI deflected by US wholesale prices

***= Nominal NI deflated by Cuban Official Cost of Living (Food) Index

Sources: Alienes (1950), p. 52. New estimate by the author deflating Nominal NI by Cost of Living (Food) Index as given by Zanetti & García (1976) p. 441.

Appendix Table 2 Output of Raw Sugar, Sugar Income and Cuban Share of World Sugar Production 1900-1958

Year	Raw Sugar Thousand MT	Income from Sugar Million cur- rent pesos	Sugar Income as % of Nominal National Income	Cuban Share (%) of World Sugar Production
1900	300.0	19.0	na	2.7
1901	635.9	30.1	na	5.0
1902	876.0	34.9	na	7.4
1903	1 029.2	43.5	22.5	8.3
1904	1 071.9	60.8	27.4	9.3
1905	1 198.6	72.7	27.5	8.4
1906	1 214.6	56.0	22.5	8.6
1907	1 491.1	71.3	28.5	10.4
1908	991.2	55.2	23.2	6.8
1909	1 559.4	85.4	28.5	10.5
1910	1 859.2	109.9	31.7	11.0
1911	1 889.5	100.4	34.0	9.4
1912	1 953.6	110.8	27.9	10.6
1913	2 502.4	106.1	28.0	13.0
1914	2 676.7	153.6	38.4	14.4
1915	2 688.2	191.4	36.9	15.6
1916	3 126.5	297.0	46.1	17.7
1917	3 147.9	316.1	46.6	18.2
1918	3 578.8	329.9	44.9	21.9
1919	4 131.6	454.5	52.7	26.4
1920	3 849.0	1 005.5*	84.4*	22.2
1921	4 053.9	273.2	46.5	22.3
1922	4 156.0	255.0	38.9	22.6
1923	3 756.8	400.2	52.6	18.6
1924	4 237.7	368.5	47.1	17.7
1925	5 347.1	290.8	41.1	21.8
1926	5 082.0	245.3	40.6	21.2
1927	4 645.7	267.0	41.2	18.0
1928	4 164.7	198.0	33.9	15.1
1929	5 313.0	199.0	34.9	19.3
1930	4 813.0	129.0	25.0	16.8
1931	3 215.7	78.0	19.9	12.5
1932	2 683.5	42.0	14.8	11.5
1933	2 054.4	43.0	14.6	8.2
1934	2 324.4	60.6	16.6	9.2
1935	2 615.1	97.6	22.4	9.4
1936	2 634.7	113.0	22.3	8.9
1937	3 065.0	148.3	24.2	9.9
1938	3 044.4	106.4	22.7	10.4
1939	2 806.6	103.6	21.2	8.9

* = exceptional year (see text)

cont.../

Sources: Raw Sugar Output: Zanetti & García (1976) pp. 433-434;
 Sugar Income: Guerra (1976) pp. 242-243 and J-L Rodríguez (1980) p. 189
 Cuban Share of World Sugar: Thomas (1971) pp. 1563-1564;
 Nominal National Income: Alienes (1950) p. 54 and J-L Rodríguez (1980)
 p. 184.

Appendix Table 2 (cont. /1940-1958/)

Year	<u>Raw Sugar</u> Thousand MT	<u>Income from</u> Sugar Million cur- rent pesos	<u>Sugar Income as</u> % of Nominal National Income	<u>Cuban Share (%)</u> of World Sugar Production
1940	2 883.8	103.8	24.1	9.1
1941	2 450.1	138.1	20.4	8.4
1942	3 446.7	224.7	31.2	13.7
1943	2 929.5	160.7	17.2	12.3
1944	4 300.9	230.6	19.0	18.8
1945	3 560.0	227.2	21.0	17.8
1946	4 060.5	305.4	23.3	21.7
1947	5 859.8	610.4	37.5	25.0
1948	6 055.4	550.0	33.3	23.9
1949	5 228.2	493.8	32.3	18.1
1950	5 557.5	630.1	39.1	18.5
1951	5 759.1	724.4	37.3	16.7
1952	7 224.6	797.1	39.3	19.4
1953	5 159.2	511.0	29.2	14.3
1954	4 890.4	500.7	27.9	12.3
1955	4 527.6	491.9	26.4	11.5
1956	4 743.7	495.0	24.3	11.6
1957	5 671.9	705.3	30.4	13.2
1958	4 780.6	632.3	29.5	12.6

Sources: see previous page.

Appendix Table 3 Growth Estimates, 1930-1958

Year	Alienes		Pérez-López		IBRD-Mission		Domínguez		New Estimate	
	Real National Income (1926 pesos)		Total Industrial Acti- vities (1952 prices)		Real Nat. Income (1939 pesos)		Real Nat. Income (1937 pesos)		Real Nat. Income (1926 pesos)	
	Index (1939=100)	Annual rate	Index (1939=100)	Annual rate	Index (1939=100)	Annual rate	Index (1939=100)	Annual rate	Index (1939=100)	Annual rate
1930	94	-	115	-	-	-	-	-	93	5.7
1931	85	-10.2	78	-32.0	-	-	-	-	85	-8.2
1932	69	-18.6	66	-16.1	-	-	-	-	54	-35.7
1933	70	2.1	58	-12.3	-	-	-	-	60	10.5
1934	77	9.0	66	13.8	-	-	-	-	65	8.6
1935	86	11.9	78	18.2	-	-	-	-	77	17.5
1936	100	16.0	90	15.4	-	-	-	-	na	na
1937	112	12.7	110	22.2	-	-	-	-	118	na
1938	94	-16.3	101	-7.2	-	-	-	-24.1	90	-23.4
1939	100	6.4	100	-1.0	100	-	100	11.4	100	10.7
1940	87	-13.4	107	7.0	-	-	89	-11.0	90	-9.9
1941	123	41.8	125	16.8	-	-	129	44.9	131	45.2
1942	114	-7.5	123	-1.2	-	-	99	-23.3	100	-23.3
1943	143	25.9	105	-14.6	-	-	117	18.2	119	18.8
1944	184	28.7	150	42.8	-	-	131	12.0	136	13.8
1945	171	-7.1	129	-14.0	-	-	100	-23.7	111	-27.8
1946	168	-1.7	139	7.8	121	-	113	13.0	118	6.5
1947	186	10.8	165	18.7	138	14.0	124	9.7	126	5.9
1948	163	-12.3	170	3.0	158	14.4	109	-12.1	117	-7.8
1949	-	-	160	-5.9	148	6.3	116	6.4	125	6.9
1950	-	-	176	10.0	154	4.1	142	22.4	136	8.6
1951	-	-	184	4.5	-	-	145	2.1	148	8.9
1952	-	-	223	21.2	-	-	146	0.7	154	14.8
1953	-	-	195	-12.6	-	-	135	-7.5	136	-11.7
1954	-	-	203	4.1	-	-	144	6.7	147	8.2
1955	-	-	211	3.9	-	-	152	5.6	157	6.3
1956	-	-	215	1.9	-	-	167	9.9	171	9.0
1957	-	-	229	6.5	-	-	178	6.6	185	8.2
1958	-	-	242	5.7	-	-	167	-6.2	164	-11.3

Sources: Alienes (1950), p. 52; Pérez-López (1974), p. 70; IBRD (1951), p. 1046; Domínguez (1978), p. 74;
New estimate explained in text

Appendix Table 4 Estimates of Cuban National Income, 1939-1958

	Nominal National Income (million current pesos)	Real National Income (million 1926 pesos)	Estimated population (mid-year) (000)	Real Income per capita
1939	488	734	4 547	161
1940	431	661	4 611	143
41	678	960	4 672	205
42	720	736	4 729	156
43	933	874	4 782	183
44	1 212	995	5 084	203
45	1 125	818	5 191	163
46	1 313	871	5 300	169
47	1 626	922	5 411	175
48	1 651	859	5 525	159
49	1 530	918	5 641	165
1950	1 611	997	5 759	175
51	1 944	1 085	5 883	186
52	2 030	1 132	6 003	189
53	1 753	1 000	6 129	163
54	1 793	1 082	6 252	173
55	1 866	1 150	6 377	180
56	2 034	1 254	6 505	193
57	2 321	1 357	6 635	205
1958	2 140	1 204	6 763	178

Sources: Nominal National Income: Alienes (1950), p. 52; IBRD (1952), p. 1043; and J-L Rodríguez (1980), p. 190.

Real National Income: Nominal NI deflated by cost of living index given in Zanetti & García (1976), p. 441 & 442.

Population estimates from AEC 1974 and Chavez (1976).

Appendix Table 5A Total Material Production at Factor Cost, 1946-1953 (million 1952 pesos)

	1946	1947	1948	1949	1950	1951	1952	1953
AGRICULTURE	416.7	525.2	532.6	498.2	553.7	557.4	650.2	533.4
Sugar	228.7	329.8	341.3	294.7	313.0	324.5	430.0	294.7
Non-sugar	233.0	195.4	191.3	203.5	240.7	232.9	220.2	238.7
MINING	17.8	12.0	10.8	11.8	12.6	15.7	22.8	28.4
MANUFACTURING	381.5	434.1	435.7	423.7	480.7	494.9	582.6	517.0
Sugar	134.9	193.4	185.1	174.7	184.8	191.7	241.2	173.0
Non-sugar	246.6	240.7	240.6	249.0	295.7	303.2	341.4	344.0
ELECTRICITY & GAS	17.0	18.3	20.5	22.1	24.3	26.8	29.4	32.2
CONSTRUCTION	55.7	55.7	65.9	72.1	80.1	88.9	75.1	81.2
TOTAL MATERIAL PRODUCTION	933.7	1 045.3	1 055.5	1 027.5	1 151.4	1 183.7	1 360.1	1 192.2

Sources: Estimates explained in text

Appendix Table 5B Total Material Production at Factor Cost 1954-1961 (million 1952 pesos)

	1954	1955	1956	1957	1958	1959	1960	1961
AGRICULTURE	532.3	508.9	527.5	594.4	588.9	616.6	627.3	671.6
Sugar	283.8	251.4	267.6	323.0	330.1	346.9	343.0	392.2
Non-sugar	248.5	257.5	259.9	271.7	258.8	269.7	284.3	279.4
MINING	24.9	28.0	25.2	26.2	26.5	21.6	15.1	13.6
MANUFACTURING	540.9	554.6	587.3	630.0	659.8	706.1	702.9	694.7
Sugar	184.4	188.2	175.8	188.1	202.8	209.0	205.5	237.2
Non-sugar	356.5	366.4	411.5	411.9	457.0	497.1	497.4	457.5
ELECTRICITY & GAS	34.8	38.4	42.3	43.3	46.7	46.4	48.1	48.2
CONSTRUCTION	101.1	90.4	96.1	99.1	98.1	89.7	108.5	116.2
TOTAL MATERIAL PRODUCTION	1 234.0	1 220.3	1 278.4	1 393.3	1 420.0	1 480.4	1 501.9	1 544.3

Sources: Estimates explained in text

Appendix Table 6 Annual Growth Rates of Total Material Production by Branches, 1947-1961

	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961
AGRICULTURE	13.8	1.4	-6.5	11.1	0.7	16.6	-18.0	-0.2	-4.4	3.7	12.7	-0.9	4.7	1.7	7.1
Sugar	44.2	3.5	-13.7	6.2	3.7	32.5	-31.5	-3.7	-11.4	6.4	20.7	2.2	5.1	-1.1	14.3
Non-Sugar	-16.1	-2.1	6.4	18.3	-3.2	-5.5	8.4	4.1	3.6	0.9	4.5	-4.7	4.2	5.4	-1.7
MINING	-32.6	-10.0	9.3	6.8	24.6	45.2	24.6	-12.3	12.4	-10.0	4.0	1.1	-18.5	-30.1	-9.9
MANUFACTURING	13.8	-1.9	-0.5	13.5	3.0	17.7	-11.3	4.6	2.5	5.9	7.2	4.7	7.0	-0.5	-1.2
Beverages	-2.6	3.2	2.4	9.3	13.4	12.6	-10.8	0.1	0.6	4.1	2.6	-4.4	17.8	-5.2	-5.5
Tobacco	5.5	3.3	-3.3	-2.5	3.3	7.5	-3.6	-6.5	4.0	7.1	8.5	-5.8	2.0	-13.6	-15.7
Textiles	-5.0	-17.6	21.4	105.0	-27.4	11.6	-9.4	26.2	-7.6	11.9	8.2	2.5	27.2	-17.1	-25.6
Processed															
Foods	0.0	0.0	11.1	6.6	-4.1	37.8	29.4	0.4	7.0	12.2	8.6	-1.7	6.4	11.6	-19.7
Sugar	43.3	-4.3	-5.6	5.7	3.7	25.8	-29.3	6.6	2.1	-6.6	7.0	7.8	3.1	-1.7	15.4
Shoemaking	44.6	-23.1	-15.6	9.5	1.2	-0.6	12.0	7.3	6.8	10.3	10.0	4.6	4.3	-15.6	-49.6
Rubber															
Products	8.6	-6.4	-9.4	55.9	24.8	-13.3	-11.0	19.2	-0.2	26.9	17.6	63.7	-0.3	-0.2	5.6
Paper &															
Paperboard	-58.8	30.0	-14.8	55.1	4.8	-3.1	14.7	3.8	5.1	12.3	3.6	1.3	26.5	-1.5	36.1
Construction															
Materials	15.1	3.1	9.6	1.3	21.1	9.7	-3.2	3.3	8.4	29.8	8.9	11.0	-8.6	21.0	7.1
ELECTRICITY & GAS	7.6	12.0	7.8	10.0	10.3	9.7	9.5	8.1	10.3	10.2	2.4	7.9	-0.8	3.7	0.2
CONSTRUCTION	0.0	18.3	9.4	11.1	11.1	-15.5	8.1	24.5	-10.6	6.3	3.1	-1.0	-8.6	21.0	7.1
TOTAL MATERIAL PRODUCTION	12.0	1.0	-2.7	12.1	2.8	14.9	-12.3	3.5	-1.1	4.8	9.0	1.9	4.3	1.5	2.8

Source: Appendix Tables 4A & 4B.

Appendix Table 7 Total Material Production at Factor Cost, 1961-1968 (Constant prices)

	1961	1962	1963	1964	1965	1966	1967	1968
AGRICULTURE	836.8	742.3	699.6	736.5	829.8	786.8	848.9	860.0
Sugar-cane	362.8	245.0	214.5	242.0	334.7	245.7	325.7	327.3
Non-sugar agriculture	245.6	264.7	246.6	232.4	215.4	249.0	243.2	259.3
Livestock	207.8	205.3	214.7	239.2	255.3	261.9	238.5	208.1
Forestry	8.3	10.9	5.5	5.4	6.1	6.0	9.0	34.4
Fishing	12.3	16.4	16.2	17.5	18.3	24.2	32.5	30.9
MINING	33.8	56.6	50.9	54.6	63.1	58.2	54.0	60.8
MANUFACTURING	1124.9	1129.3	1112.6	1153.1	1190.4	1166.9	1314.0	1276.3
Metallurgy	73.1	75.4	74.5	76.3	68.0	71.9	76.4	93.9
Construction Materials	83.4	76.1	78.1	67.8	74.5	70.5	91.6	67.6
Petroleum	114.0	136.5	132.1	132.2	142.0	144.4	147.7	135.2
Chemicals	118.8	153.0	155.2	166.6	156.9	166.0	208.7	229.4
Textiles & Leather	131.8	139.9	153.8	161.7	148.8	145.9	150.3	136.6
Sugar	216.0	153.7	128.1	146.7	200.4	148.4	209.4	172.5
Food	205.0	208.6	204.1	208.4	200.6	203.2	205.8	267.8
Beverages & Tobacco	110.7	108.3	111.7	117.4	112.7	117.5	127.7	120.7
Other Industry	72.1	77.8	75.0	76.0	86.5	99.1	96.4	52.6
ELECTRICITY	67.4	66.6	71.0	76.1	79.9	84.6	85.7	91.5
CONSTRUCTION	239.9	253.1	239.5	287.0	357.0	354.0	408.0	359.6
TOTAL MATERIAL PRODUCTION	2302.8	2247.9	2172.6	2397.3	2520.2	2450.5	2711.4	2648.2

Source: Estimates explained in text

Appendix Table 8 Annual Growth Rates of Total Material Production by Branches, 1962-1968

	1962	1963	1964	1965	1966	1967	1968
AGRICULTURE, FORESTRY & FISHING							
Sugar cane	-11.3	-5.8	5.3	12.7	-5.2	7.9	1.3
Non-sugar agriculture	-32.5	-6.8	12.8	38.3	-26.6	32.6	0.5
Livestock	7.8	-6.8	-5.8	-7.3	15.6	-2.3	6.6
Forestry	-1.2	4.6	11.4	6.7	2.6	-8.9	-12.7
Fishing	31.3	-49.5	-1.8	13.0	-1.6	50.0	282.2
	33.3	-1.2	8.0	4.6	32.2	34.3	-4.9
MINING							
	67.5	10.1	7.3	15.6	-7.8	-7.2	12.6
MANUFACTURING							
	0.4	-1.5	3.6	3.2	-2.0	12.6	-2.9
Metallurgy & Mechanical Industry							
Construction Material	3.1	-1.2	2.4	-10.9	5.7	6.3	22.9
Petroleum	-8.8	2.6	-13.2	9.9	-5.4	29.9	-26.2
Chemicals	19.7	-3.2	0.1	7.4	1.7	2.3	-8.5
Textiles & Leather	28.8	1.4	7.3	-5.8	2.6	29.6	9.9
Sugar	6.1	9.9	5.1	-8.0	-1.9	3.0	-9.1
Food	-28.8	-16.7	14.5	36.6	-25.9	41.1	-17.6
Beverages & Tobacco	1.8	-2.2	2.1	-3.7	1.3	1.3	30.1
Other Industry	-2.2	3.1	5.1	-4.0	4.3	8.7	-5.5
	7.9	-3.6	1.3	13.8	14.6	-3.0	-45.3
ELECTRICITY							
	-1.2	6.6	7.2	5.0	5.9	1.3	6.8
CONSTRUCTION							
	5.5	-5.8	20.3	24.4	-0.8	15.5	-12.0
TOTAL MATERIAL PRODUCTION							
	-2.4	-3.3	6.2	9.2	-2.8	10.6	-2.3

Source: Appendix Table 7

Appendix Table 9 Total Material Production at Factor Cost, 1968-1980 (Constant prices)

	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
AGRICULTURE	860.0	835.5	953.7	849.5	858.2	892.9	950.0	982.0	1042.8	1082.5	1183.7	1194.6	1231.7
Sugar cane	327.3	361.1	483.6	365.2	319.3	331.4	341.7	354.4	362.1	414.4	477.3	481.0	392.9
Non-sugar													
agriculture	259.3	233.3	207.7	213.4	241.1	251.5	290.7	300.0	323.8	305.3	318.6	328.0	417.5
Livestock	208.1	194.8	204.6	194.4	215.2	221.6	222.9	241.4	255.0	262.9	274.9	282.5	297.2
Forestry	34.6	33.6	21.5	24.7	30.3	32.9	32.9	30.6	29.6	29.7	32.4	29.9	33.7
Fishing	30.9	22.7	42.5	55.0	57.9	58.1	61.8	55.6	72.3	70.2*	80.5*	73.2*	90.4*
MINING	60.8	55.9	59.2	59.2	62.8	64.8	64.9	70.5	66.5	65.2	67.4	64.8	74.2
MANUFACTURING	1276.3	1257.3	1561.5	1658.4	1760.3	1980.1	2148.9	2422.8	2502.0	2516.4	2740.3	2807.3	2750.0
Metallurgy	93.9	87.1	131.2	159.4	184.8	248.8	309.3	392.1	435.4	477.0	535.4	586.0	520.4
Construction													
material	67.6	47.2	50.5	74.8	100.1	117.5	120.8	137.5	143.9	153.7	158.2	158.5	161.3
Petroleum	135.2	142.3	155.3	160.5	175.6	200.1	191.8	208.9	200.8	196.8	205.9	206.4	204.5
Chemicals	229.4	238.5	304.6	340.5	358.2	390.9	420.0	471.5	470.5	405.6	459.8	482.0	500.9
Textiles &													
Leather	136.6	125.3	104.3	134.8	150.2	165.8	179.1	215.2	223.4	225.9	251.2	246.9	239.6
Sugar	172.5	187.6	254.3	234.5	186.2	208.1	223.9	237.5	231.0	260.6	298.6	308.5	279.5
Food	267.8	280.5	343.2	358.4	385.9	407.4	435.0	460.2	468.2	482.2	496.3	484.1	533.3
Beverages &													
Tobacco	120.7	96.7	153.2	127.0	146.9	160.1	180.5	200.2	225.9	211.2	222.2	219.3	197.4
Other Industry	52.6	52.1	64.9	68.5	72.4	81.4	88.5	99.7	102.9	103.4	112.7	115.6	113.1
ELECTRICITY	91.5	99.1	103.0	106.0	112.8	122.6	126.8	138.2	151.6	153.3	167.1	170.3	179.2
CONSTRUCTION	359.6	306.4	298.4	392.5	549.6	731.2	806.3	962.4	1020.4	1121.0	1203.6	1213.2	1230.2
TOTAL MATERIAL													
PRODUCTION	2648.2	2554.2	2975.8	3065.6	3343.7	3791.6	4096.9	4575.9	4783.3	4983.3	5362.1	5450.2	5465.3

*) After 1976 'Fishing' is no longer shown as a Primary activity but as a separate category under 'Industry'. Here the same growth index has been applied to 'Fishing'.

Source: Estimates explained in text

Appendix Table 10 Annual Growth Rates of Total Material Production by Branches, 1969-1980

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980
AGRICULTURE, FORESTRY & FISHING	-2.8	14.1	-10.1	1.0	4.0	6.4	3.4	6.2	3.8	9.3	0.9	3.1
Sugar cane	10.3	33.9	-24.5	-12.6	3.8	3.1	3.7	2.2	14.4	15.2	0.8	-18.3
Non-sugar Agriculture	-10.0	-7.0	2.7	13.0	4.3	15.6	3.2	7.9	-5.7	4.4	3.0	27.3
Livestock	-6.4	5.0	-5.0	10.7	3.0	0.6	8.3	5.6	3.1	4.6	2.8	5.2
Forestry	-34.3	-32.3	40.5	14.9	22.7	8.6	-7.0	-3.3	0.3	9.1	-8.7	12.7
Fishing	9.1	26.1	29.4	5.3	0.3	6.4	-10.0	30.0	-12.9	14.7	-9.1	23.5
MINING	-8.1	5.9	0.0	6.1	3.2	0.2	8.6	-5.7	-2.0	3.4	-3.9	14.5
MANUFACTURING	-1.5	24.2	6.2	6.1	12.5	8.5	12.7	3.3	0.6	8.9	2.4	-2.0
Metallurgy & Mechanical Industry	-7.2	50.6	21.5	15.9	34.6	24.3	26.8	11.0	9.6	12.2	9.5	-11.2
Construction Materials	-30.2	7.0	48.1	33.8	17.4	3.0	13.8	4.7	6.8	2.9	0.2	1.8
Petroleum	5.3	9.1	3.3	9.4	14.0	-4.1	8.9	-3.9	-2.0	4.6	0.2	-0.9
Chemicals	4.0	27.7	11.8	5.2	9.1	7.4	12.3	-0.2	-13.8	13.4	4.8	3.9
Textiles & Leather	-8.3	-16.8	29.2	11.4	10.4	8.0	20.2	3.8	1.1	11.2	-1.7	-3.0
Sugar	8.8	35.6	-7.8	-20.6	11.8	7.6	6.1	-2.7	12.8	14.6	3.3	-9.4
Food	4.7	22.4	4.4	7.7	5.6	6.8	5.8	1.7	3.0	2.9	-2.5	10.2
Beverages & Tobacco	-19.9	58.4	-17.1	15.7	9.0	12.7	10.9	12.8	-6.5	5.2	-1.3	-10.0
Other Industry	-1.0	24.6	5.5	5.7	12.4	8.7	12.7	3.2	0.5	9.0	2.6	-2.2
ELECTRICITY	8.3	3.9	2.9	6.4	8.7	3.4	9.0	9.7	1.1	9.0	1.9	5.2
CONSTRUCTION	-14.7	-2.6	31.5	40.0	33.0	10.3	19.4	6.0	9.9	7.4	0.8	1.4
TOTAL MATERIAL PRODUCTION	-3.5	16.5	3.0	9.1	13.4	8.1	11.7	4.5	3.2	8.6	1.6	0.3

Source: Appendix Table 9

	TRANSPORT EQUIPMENT			MACHINERY (EXCEPT ELECTRICAL)			Inputs for "Acopios" (million pesos)
	Buses (units)	Fishing Boats (units)	Wagons for Sugar Cane (units)	Trailers (units)	Combines (units)	Water Pumps (units)	
1958	-	-	-	-	-	na	-
59	-	-	-	-	-	na	-
1960	-	-	-	-	-	na	-
61	-	-	-	-	-	na	-
62	-	-	-	-	-	na	-
63	-	23	1134	-	-	na	-
64	-	26	1752	-	-	na	-
65	-	23	2000	-	-	na	-
66	-	23	678	-	-	na	-
67	-	7	723	-	-	na	-
68	-	-	-	-	-	na	-
69	-	-	5181	-	-	1858	30.7
1970	300	36	24	-	-	1605	39.7
71	800	53	1606	52	-	1497	28.2
72	575	87	1650	105	-	4256	59.8
73	1137	105	3906	51	-	5742	28.7
74	1255	131	3000	50	-	8812	40.4
75	1718	137	3600	50	-	14130	73.5
76	1266	156	3600	90	-	14851	97.0
77	1970	152	3000	283	-	3672	81.3
78	1805	139	3000	-	30	1201	94.3
79	2440	93	3900	100	165	511	860.9
1980	1846	120	3410	140	360	585	608.0
				na	501	3415	na

na = not available

Source: 1958-62: Mesa-Lago (1971) and ECLA (1965); 1963-67: BEC 1968, 1970; 1968-74: AEC 1974; 1975-78: AEC 1978;
1979-80: AEC 1979 and BEM 1981 (March).

Appendix Table 12 Output of Selected Industrial Products, 1958-1980 (cont.)2

	ELECTRICAL EQUIPMENT				ELECTRIC POWER (million kWh)	MINING INDUSTRY		
	Electrical cables (km)	Telephone cables (km)	Batteries (units)	Electrical wires (mt)		Copper Concentrates (000MT) **	Nickel ** (000MT)	Refractory Chrome (000MT) **
1958	na	na	na	na	2589	17.9	17.9	na
59	na	na	na	na	2806	17.8	18.0	na
1960	na	na	na	na	2981	11.8	12.8	na
61	na	na	na	na	3030	5.0	14.8	na
62	na	na	na	na	2998	5.5	16.6	na
63	25680	3501	113.9	na	2572	6.8	19.8	56.6
64	16800	3463	125.7	na	2770	5.5	22.9	32.9
65	23589	4944	102.1	na	2926	6.0	28.2	41.0
66	17187	4829	62.4	na	3316	5.4	27.9	37.5
67	15323	3703	88.9	na	3658	5.2	32.4	43.0
68	14701	3385	96.9	1167	3789	5.3	37.3	48.5
69	12654	4137	90.5	1175	3585*	3.8	35.4	45.3
1970	13122	4631	95.2	825	4888	0.4	36.8	22.8
71	19894	7923	90.4	1144	5021	--	36.5	13.9
72	19174	5192	108.3	1330	5265	1.8	36.8	37.1
73	32869	4060	111.6	1022	5703	2.1	35.2	37.2
74	28951	4767	126.4	1164	6018	2.9	33.9	37.7
75	27287	4635	139.4	1332	6583	2.8	37.3	36.1
76	30273	2780	98.8	975	7191	2.9	37.0	19.1
77	21356	3658	97.4	657	7707	2.6	36.8	20.4
78	26313	3108	136.6	1388	8481	2.8	34.8	28.8
79	42046	3753	177.9	2362	9401	2.8	32.3	28.2
1980	38000	6667	301.9	2547	9896	3.3	38.2	28.5

na = not available

*) excluding autogeneration in sugar industry.

**) metal content.

Source: same as Table 11.

Appendix Table 13 Output of Selected Industrial Products, 1958-1980 (cont.) 3

	METALLURGY & METAL PRODUCTS			PETROLEUM PRODUCTS			RAW SUGAR (000 MT)
	Crude steel (000MT)	Corrugated steel (000MT)	Steel balks (million units)	Aluminum tins (million units)	Refined oil (000MT)	Fuel oil (000MT)	Gasoline (000MT)
1958	30*	na	na	na	na	na	na
59	na	na	na	na	na	na	5781
1960	na	na	na	na	na	1379	5964
61	107.4	103.8	na	na	3001	1392	5862
62	55.0	122.1	na	na	3673	1995	6767
63	62.9	82.5	na	na	3691	2221	4815
64	52.2	49.8	41.3	27.3	3454	1953	3821
65	36.0	26.3	--	30.3	3569	1899	4590
66	66.6	74.9	62.6	25.7	3699	1973	6082
67	102.4	88.9	98.7	29.9	3817	1930	4867
68	119.8	103.9	109.5	38.5	3879	1941	6236
69	119.2	87.1	100.2	34.0	4140	2670	5315
1970	140.0	85.0	105.7	38.5	4350	2367	5534
71	110.8	95.3	111.1	31.7	4308	2376	7559
72	186.6	145.1	162.7	43.8	4745	2526	746
73	220.7	189.1	194.4	51.9	5346	2673	712
74	250.3	205.4	215.2	52.0	5567	2822	803
75	298.4	242.6	260.6	54.9	5976	2936	911
76	250.3	229.7	235.3	52.2	6129	3210	868
77	330.5	292.4	289.2	53.0	6324	3101	911
78	323.6	292.8	263.1	53.1	6359	3213	909
79	327.8	313.5	303.3	59.3	6371	3018	887
1980	303.8	260.2	248.3	39.2	6334	3018	872
				na			816
							7075

na = not available

*) Speech by Fidel Castro on 26 July 1977 quoted in Fabian (1981), p. 663.

Source: same as Table 11.

Appendix Table 14

Output of Selected Industrial Products, 1958-1980 (cont.)⁴

	Sulphuric acid (MT)	Rayon Tire cards (MT)	Fertilizers (000MT)	Insecticides (MT)	Herbicides (MT)	Paper Pulp (000MT)	Newsprint (000MT)	Tyres (000 units)	Matches (million boxes)
1958	34*	4700	266*	--	--	na	na	264.9	na
59	na	na	na	--	--	na	na	na	na
1960	44	7500	300	--	--	na	na	343.0	na
61	59	1800	406	1400	200	na	na	362.0	192.5
62	139	2500	519	4800	300	na	na	391.0	221.1
63	139	1055	439	2523	1412	na	16.8	363.6	245.9
64	190	1487	430	1926	9	na	22.7	450.8	273.0
65	202	1044	473	2461	847	na	18.8	197.1	277.9
66	230	1526	514	2288	255	an	16.4	305.7	322.7
67	270	1857	788	3651	1532	na	18.9	413.9	333.6
68	322	540	860	2486	768	32.4	20.9	147.7	382.8
69	326	1402	695	4164	1048	32.6	19.9	356.4	395.6
1970	322	1131	577	1414	2203	33.7	18.9	301.9	370.7
71	368	1425	565	2988	2594	36.0	22.0	751.2	457.2
72	400	1521	620	3416	2738	35.0	24.7	381.1	428.2
73	385	1268	663	4424	2715	43.0	26.9	371.5	439.6
74	384	1674	728	5200	2766	42.6	28.5	390.8	414.3
75	418	2154	749	5426	3102	36.3	32.0	367.8	424.4
76	392	1637	798	3591	3118	40.9	32.3	266.4	425.1
77	375	440	863	2660	na	37.5	31.3	171.9	430.8
78	347	1415	945	3013	na	33.9	35.6	294.5	414.1
79	297	1586	873	4414	na	29.5	34.9	302.0	370.5
1980	402	1648	1059	na	na	29.9	36.7	386.6	383.4

na = not available

*) 1957

Source: same as Table 11.

Appendix Table 15 Output of Selected Industrial Products, 1958-1980 (cont.) 5

	CONSTRUCTION MATERIALS		Refrigerators (units)	DURABLE		CONSUMER Kerosene Stoves (units)	GOODS Stoves (units)	Radio Rec. (units)	TV-Sets (units)
	Cement (000MT)	Concrete (prefabricated) (000 m ³)		Bricks (000 units)	Gas Stoves (units)				
1958	736	na	--	na	na	--	--	na	--
59	673	na	--	na	na	--	--	na	--
1960	813	na	--	na	na	--	--	na	--
61	871	na	--	na	na	--	--	na	--
62	779	na	--	na	na	--	--	na	--
63	812	341	--	67849	8727	--	--	38569	--
64	806	350		66546	29645	--	--	41642	--
65	801	361		64322	10228	--	--	81861	--
66	750	340		52599	46024	--	--	43068	--
67	835	378		74146	34878	--	--	7312	--
68	780	162		48148	6440	--	--	20853	--
69	680	113		27203	4155		500	--	--
1970	742	134		31389	6009		2150	19135	--
71	1088	256		46061	30010		25381	12706	--
72	1474	582		70727	30000		50800	31283	--
73	1757	734		64855	40112		72250	23928	--
74	1814	828		66691	42001		100000	42223	--
75	2083	981		76861	50012		104000	112635	25600
76	2501	919		99943	43687		79000	92352	28000
77	2656	915		113361	46274		102465	120005	33000
78	2712	894		115424	45573		73272	120628	51166
79	2613	883		115133	55622		107127	143272	52414
1980					25002		107100	200000	40290

na = not available

Source: same as Table 11.

Appendix Table 16

Output of Selected Industrial Products, 1958-1980 (cont.) 6

	Leather Shoes (000 units)	Cotton Cloth (million m ²)	Rayon Cloth (million m ²)	NON DURABLE CONSUMER GOODS				
				Rice 3)	Wheat Flour (000MT)	Beef ⁵⁾ (000MT)	Pork ⁵⁾ (000MT)	Condensed and evaporated milk (000MT)
1958	20000 ¹⁾	na	na	169.5 ⁴⁾	66.0	93.8 ⁶⁾	7.6 ⁶⁾	35.1 ⁷⁾
59	16700	na	na	218.4 ⁴⁾	na	102.0 ⁶⁾	8.0 ⁶⁾	na
1960	10203	99.4 ²⁾	na	216.4 ⁴⁾	106.6	86.7 ⁶⁾	7.4 ⁶⁾	na
61	3398	98.7 ²⁾	na	138.7 ⁴⁾	106.3	83.1 ⁶⁾	8.2 ⁶⁾	na
62	7085	117.9 ²⁾	na	138.6 ⁴⁾	142.5	75.0 ⁶⁾	8.6 ⁶⁾	39.3
63	11522	89.7	21.6	136.7 ⁴⁾	133.3	72.8	8.0	49.3
64	12811	105.2	21.7	83.1	126.9	86.1	9.4	45.9
65	11003	95.9	21.2	46.1	137.3	97.7	9.9	56.6
66	12643	108.4	6.4	43.2	131.5	108.5	6.1	60.9
67	13674	112.5	6.2	45.8	130.8	99.7	5.5	65.7
68	13673	105.2	5.3	51.1	137.6	110.8	5.0	68.3
69	13261	91.3	4.4	87.9	147.9	104.5	2.6	69.2
1970	12052	75.7	2.2	182.8	159.7	104.9	7.6	68.1
71	14217	87.1	8.1	134.4	175.3	100.8	10.0	77.9
72	14390	98.0	7.4	184.7	177.6	99.0	11.4	49.4
73	14760	117.1	6.8	139.5	178.4	84.6	12.9	58.6
74	13512	127.9	3.8	206.5	184.3	69.8	19.0	57.3
75	15513	137.6	6.3	222.8	176.1	67.7	24.2	62.1
76	14979	134.1	5.1	210.9	165.4	80.5	29.1	62.1
77	13449	148.9	2.7	241.4	176.4	87.5	33.7	63.2
78	14685	154.4	1.5	238.4	174.9	83.4	34.9	63.0
79	13759	148.4	1.5	202.6	169.5	78.8	34.0	65.2
1980	12927	157.4	na	225.2	271.0	80.3	34.2	66.3

na = not available

1) Including rubber shoes; 2) tons converted into million m²; 3) hulled rice; 4) paddy converted into hulled rice;

5) net weight; 6) Carcass weight converted into net weight;

7) Cases of cans converted into tons (Pérez-López

/1974/, p. 116).

Source: same as Table 11.

Appendix Table 17A Estimates of Cuban Labour Force and its Distribution, 1962-1978

	Total Population (mid-year)	Total labour force	Un- employed	Employed labour force	Armed forces	Total Civilian Labour Force	
						Total	State Private
1962	7 254	2 401	215	2 186	363	1 823	1 083 740
63	7 415	2 431	198	2 232	382	1 851	1 238 613
64	7 612	2 456	185	2 271	386	1 885	1 369 516
65	7 810	2 490	163	2 327	367	1 960	1 452 508
66	7 985	2 508	155	2 253	360	1 993	1 517 476
67	8 139	2 549	135	2 414	350	2 064	1 604 460
68	8 284	2 579	110	2 477	325	2 152	1 768 384
69	8 421	2 608	75	2 533	275	2 258	1 895 363
1970	8 551	2 638	34	2 604	200	2 404	2 064 340
71	8 691	2 652	55	2 597	195	2 402	2 082 320
72	8 859	2 680	64	2 616	190	2 426	2 126 300
73	9 035	2 795	84	2 711	185	2 526	2 246 280
74	9 192	2 869	111	2 758	185	2 573	2 313 260
75	9 335	2 923	90	2 833	210	2 683	2 391 232
76	9 471	2 974	85	2 889	220	2 669	2 469 200
77	9 593	3 088	60	3 028	225	2 803	2 621 182
1978	9 694	3 178	40	3 138	230	2 908	2 733 175

Sources: Mesa-Lago (1981), Table 26, p. 111; AEC 1978 and 1979; 1970 figures estimated from census data

cont...

Appendix Table 17B Estimates of Cuban Labour Force and its Distribution, 1962-1978 (cont.)

	Agri- culture total	Agriculture	Industry	Construction	Transport & Communications	Trade	Services & others
1962	841	297	267	104	74	132	209
63	705	305	289	97	83	205	259
64	766	386	303	108	82	216	274
65	803	433	309	117	84	214	295
66	810	450	323	118	82	235	309
67	na	na	na	na	na	na	na
68	na	na	na	na	na	na	na
69	na	na	na	na	na	na	na
1970	712*	495*	479	140	125	272	560
71	892	604	440	133	175	168	562
72	907	637	438	154	177	166	554
73	923	670	453	177	182	177	587
74	910	675	467	183	186	184	618
75	894	685	472	208	187	179	660
76	865	685	477	243	199	179	686
77	799	636	567	300	179	282	657
1978	865	660	553	319	183	296	722

*) census figure, does not include people mobilized for 1969/1970 zafra.

Sources: Same as Table 17A.

Appendix Table 18A Per capita consumption of food & beverages in Cuba 1963-1971 (kgs.)

	1963	1964	1965	1966	1967	1968	1969	1970	1971
Beef	8.5	10.0	11.2	12.3	12.2	12.5	11.2	11.4	11.1
Pork	0.2	0.3	0.3	0.2	0.2	0.2	0.1	0.6	0.6
Offal	1.1	3.3	3.5	3.2	2.9	3.5	3.1	3.1	3.0
Canned meat	5.8	4.4	2.5	1.9	3.0	2.8	3.3	2.6	4.4
Poultry	4.2	4.7	3.9	2.7	2.4	2.4	1.9	1.8	2.1
Eggs (units)	101	109	113	125	142	144	153	160	164
Beans	9.4	10.3	9.9	9.9	10.9	9.7	9.9	9.4	10.2
Butter	0.4	0.3	0.3	0.4	0.4	0.2	—*	—*	—*
Lard	5.4	7.1	6.1	5.8	5.2	4.7	5.5	8.0	7.7
Veg. oil	4.6	4.5	4.9	5.5	6.2	7.2	6.1	3.8	5.0
Potatoes	15.4	15.0	13.6	17.6	16.7	16.0	14.9	12.5	11.3
Sweet potatoes	11.1	10.2	11.1	18.5	10.5	10.8	5.3	2.4	4.6
Malanga	5.6	5.2	6.3	8.4	4.9	4.9	3.8	1.3	1.4
Manioc	8.5	6.7	5.5	8.3	4.4	5.4	4.2	2.4	3.0

*) less than 0.1 kg.

Sources: Calculated from data in BEC 1968, 1970, 1971; AEC 1974, 1979 and Boletín Estadístico Mensual de Cuba, March 1981.

Appendix Table 18B

Per capita consumption of food & beverages in Cuba 1972-1980 (kgs.)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Beef	10.5	8.7	6.9	6.4	7.7	8.4	8.3	8.1	8.3
Pork	0.8	1.0	1.4	1.0	0.9	1.9	2.2	2.4	2.4
Offal	2.9	2.4	2.0	1.8	2.1	2.3	2.3	2.2	2.1
Canned meat	5.0	4.9	6.9	7.9	4.8	5.7	5.3	5.8	6.7
Poultry	2.6	2.9	4.7	7.2	6.5	5.9	7.0	7.4	8.8
Eggs (units)	167	172	177	186	175	174	178	184	212
Beans	10.0	9.9	10.2	10.3	11.1	10.2	10.7	9.5	12.5
Butter	0.3	0.6	0.6	0.5	0.5	0.5	1.0	0.8	0.7
Lard	6.6	6.8	7.5	8.8	8.3	7.4	8.8	7.6	7.7
Veg. oil	5.5	5.1	4.9	4.1	4.8	5.1	4.5	5.5	5.3
Potatoes	9.5	7.4	11.5	13.5	15.9	15.8	19.5	18.3	22.3
Sweet potatoes	7.0	9.2	8.6	8.7	7.8	6.1	5.5	7.8	9.5
Malanga	2.7	1.9	2.5	3.6	3.6	5.7	10.8	10.0	12.2
Manioc	7.0	7.4	6.8	8.0	8.0	8.1	8.3	7.0	8.5

Sources: Calculated from data in BEC 1968, 1970, 1971; AEC 1974, 1979 and Boletín Estadístico Mensual de Cuba, March 1981.

Appendix Table 13C Per capita consumption of food & beverages in Cuba 1963-1971 (kgs.)

	1963	1964	1965	1966	1967	1968	1969	1970	1971
Plantains	9.3	10.0	8.8	8.5	6.8	8.6	10.3	4.4	4.7
Name	1.1	1.1	0.7	1.3	0.6	0.19	0.6	0.22	0.13
Pumpkins	6.2	9.5	6.8	5.0	5.5	2.1	1.7	2.3	4.1
Rice	36.8	42.4	41.8	26.1	26.5	24.5	32.6	41.7	45.0
Wheat	24.3	22.3	15.2	15.6	14.5	13.7	10.2	8.6	7.8
Bread	7.5	19.2	23.6	33.0	38.8	43.7	44.7	45.3	44.7
Spaghetti	2.7	3.0	3.4	4.2	4.7	4.8	5.5	5.2	5.0
Cornmeal	0.8	3.2	2.0	0.5	0.3	0.2	0.1	0.1	0.2
Coffee	4.6	3.1	3.4	2.8	2.9	2.9	3.1	3.2	3.1
Sugar	30.9	38.9	47.3	52.8	59.9	66.1	44.2	46.5	46.8
Tomatoes	12.0	14.1	14.8	16.0	19.1	11.4	5.2	6.8	9.5
Onions	2.7	4.1	3.0	3.5	3.7	2.9	2.7	2.3	3.0
Cucumber	0.7	1.2	1.9	1.5	1.6	1.4	1.0	1.2	2.2
Cabbage	1.7	1.6	1.6	1.7	2.0	1.8	1.8	1.2	2.2
Citrus Fruits	14.0	15.1	13.9	18.8	15.8	17.1	14.7	14.8	10.5
Pineapple	5.6	4.2	2.0	1.2	0.8	0.9	1.2	1.7	2.4

Sources: Same as previous Table.

Appendix Table 18D

per capita consumption of food & beverages in Cuba 1972-1980 (kgs.)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Plantains	11.4	16.1	10.2	8.9	10.3	8.1	8.6	7.2	7.1
Yams	0.24	0.3	0.3	0.5	0.8	0.9	0.6	0.8	1.0
Pumpkins	3.2	4.6	4.7	6.6	3.3	2.4	3.0	2.3	2.6
Rice	43.7	42.4	43.7	44.6	41.0	37.7	39.6	39.7	42.2
Wheat	7.8	7.0	6.3	6.6	4.9	5.8	5.5	11.0	17.6
Bread	44.4	40.1	45.7	44.0	43.8	31.0	39.3	40.4	40.9
Spaghetti	5.7	5.8	5.6	5.8	5.6	5.2	5.3	5.3	6.1
Cornmeal	—*	0.1	1.0	1.1	4.9	5.4	4.9	3.2	3.2
Coffee	3.0	3.0	3.0	3.0	2.7	1.6	1.8	1.8	2.1
Sugar	37.4	33.1	36.5	30.8	36.1	36.8	37.0	38.2	38.2
Tomatoes	6.2	10.7	18.9	18.3	19.7	14.7	13.1	14.0	15.7
Onions	1.7	2.1	2.1	1.9	1.8	1.9	1.8	1.8	2.1
Cucumber	2.5	3.4	3.2	4.3	3.1	2.5	2.8	2.8	2.8
Cabbage	1.9	2.3	2.4	2.5	3.5	1.6	2.0	2.0	2.0
Citrus Fruits	12.3	12.3	11.6	12.4	13.4	12.0	11.0	9.4	15.8
Pineapple	3.6	3.4	3.3	2.4	2.3	1.8	1.9	2.0	3.4

*) less than 0.1 kg.

Sources: Same as previous Table.

Appendix Table 18E Per capita consumption of food & beverages in Cuba 1963-1971 (kgs.)

	1963	1964	1965	1966	1967	1968	1969	1970	1971
Bananas	5.8	4.3	4.6	3.3	3.4	2.9	3.3	5.1	5.9
Other fruits ¹⁾	9.3	10.0	14.5	15.4	17.4	22.6	12.3	7.6	11.0
Fresh & frozen fish	3.5 ²⁾	3.5	3.6	3.7	6.0	6.0	6.3	8.8	8.7
Canned fish	0.5	0.7	1.7	1.0	1.0	0.9	1.1	1.1	0.9
Fluid milk	19.5	21.1	26.2	37.9	43.5	44.0	51.7	55.2	57.7
Condensed milk	8.2	8.3	8.5	7.9	8.7	8.7	8.7	8.5	8.0
Evaporated milk	0.7	0.6	1.6	1.6	1.6	1.4	1.6	1.5	1.4
Yoghurt	—*	0.11	0.4	0.9	1.2	1.4	1.6	1.8	2.1
Cheese	0.61	0.52	0.33	0.30	0.21	0.32	0.62	0.39	0.46
Ice-cream	0.9	1.0	1.2	1.6	2.3	1.6	2.3	2.2	3.1
Soft drinks ³⁾	51.7	49.8	47.1	44.0	44.1	43.5	35.9	28.0	28.9
Light beer ³⁾	12.0	13.6	12.8	13.6	16.7	9.5	7.8	11.1	15.1
Dark beer ³⁾	3.3	3.0	2.2	2.4	2.9	5.7	7.1	5.2	6.5

*) less than 0.1 kg.

1) Mango, guayaba, avocado, papaya, maney and coco; 2) Estimate; 3) Liters.

Sources: Same as previous Table.

Appendix Table 18F

Per capita consumption of food & beverages in Cuba 1972-1980 (kgs.)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Bananas	7.8	7.6	8.4	10.6	12.4	12.8	14.4	13.2	13.0
Other fruits ¹⁾	11.6	16.1	18.4	17.9	19.9	18.8	15.5	16.6	27.7
Fresh & frozen fish	9.6	10.2	9.5	8.9	8.8	8.9	10.1	8.3	11.3
Canned fish	0.7	0.4	0.9	1.7	1.0	0.6	0.5	0.5	0.7
Fluid milk	59.3	62.5	64.2	65.1	66.1	62.6	72.0	71.5	72.2
Condensed milk	6.9	6.9	6.1	6.9	7.2	6.5	6.8	5.9	6.1
Evaporated milk	1.6	1.7	1.5	1.7	1.6	1.8	1.8	2.6	2.6
Yoghurt	2.4	2.6	2.9	4.2	5.4	6.3	5.6	5.0	5.0
Cheese	0.45	0.8	0.9	1.2	1.1	1.3	1.3	1.6	1.7
Ice-cream	3.3	3.5	3.4	3.8	4.1	4.2	4.2	4.7	4.3
Soft drinks ²⁾	33.4	33.6	24.6	20.9	21.7	15.6	18.6	18.9	25.6
Light beer ²⁾	18.8	20.5	19.6	22.4	23.2	23.0	23.8	23.6	24.3
Dark beer ²⁾	6.6	5.5	5.2	4.5	3.9	2.7	1.8	2.3	2.4

1) Mango, guayaba, avocado, papaya, maney and coco; 2) Liters

Sources: Same as previous Table.

Appendix Table 19A Prices of Basic Needs Goods, Cuba 1977
and Canada 1961

	<u>Cuba 1977</u> <u>(pesos/kg)</u>	<u>Canada 1961</u> <u>(dollars/kg)</u>
Beef	1.78	1.80
Pork	1.65	1.75
Offal	1.21	0.22
Canned meat	0.90	1.04
Poultry	1.10	1.55
Eggs (units)	0.08	0.03
Black beans	0.37	0.62
Butter	6.60	1.54
Lard	0.53	0.51
Vegetable oil	0.73	0.68*
Potatoes	0.15	0.11
Sweet potatoes	0.13	0.37
Malanga	0.22	0.11**
Manioc	0.13	0.11**
Plantains	0.15	0.22**
Name	0.18	0.11**
Pumpkin	0.13	0.11**
Rice	0.42	0.46
Wheat flour	0.22	0.20
Bread	0.50	0.55
Spaghetti	0.66	0.55**
Cornmeal	0.33	0.20
Coffee	2.09	2.64
Sugar	0.15	0.21
Tomatoes	0.18	0.55
Onions	0.31	0.25

*) margarine **) imputed value

Sources: Cuba: Lista oficial de Precios, Comité Estatal de Precios,
Havana, 1981;
Canada: Usher (1980), pp. 200-210.

cont...

Appendix Table 19B Prices of Basic Needs Goods, Cuba 1977 and Canada 1961 (cont.)

	<u>Cuba 1977</u> <u>(pesos/kg)</u>	<u>Canada 1961</u> <u>(dollars/kg)</u>
Cucumber	0.24	0.33
Cabbage	0.18	0.20
Citrus fruits	0.13	0.44
Pineapple	0.15	0.24
Banana	0.15	0.41
Other fruits	0.14	0.41**
Fresh & frozen fish	0.88	1.06
Canned fish	1.54	0.79
Fluid milk (liter)	0.26	0.26
Condensed milk	0.44	0.77
Evaporated milk	0.46	0.35
Yoghurt (liter)	0.44	1.09
Cheese	0.55	1.60
Ice-cream (liter)	0.95	1.09
Soft drinks (liter)	0.24	0.25
Light beer (liter)	1.71	0.66
Dark beer (liter)	2.29	0.66
Cotton cloth (m ²)	1.50	na
Rayon cloth (m ²)	10.00	na
Underwear	1.55	0.67
Blouses	4.74	1.87
Shirts	5.22	1.85
Pants	15.00	4.75
Skirts	5.12	3.40
Suits	78.22	31.27
Dresses	15.88	6.78
Leather shoes (pairs)	12.77	4.18

**) imputed value na = not available

Sources: Same as

Appendix Table 20A Estimated per capita expenditures on food & beverages, 1963-1971
(Cuban 1977 prices)

	1963	1964	1965	1966	1967	1968	1969	1970	1971
Meat products	26.63	31.42	31.22	30.77	30.90	31.98	28.92	29.35	30.65
Eggs	8.08	8.72	9.04	10.00	11.36	11.52	12.24	12.80	13.12
Pulses	3.48	3.81	3.66	3.65	4.03	3.59	3.68	3.48	3.77
Oils & fats	8.86	9.03	8.79	9.73	9.93	9.07	7.37	7.01	7.73
Tubers	8.50	8.53	7.92	10.14	7.38	7.17	6.20	4.15	4.26
Cereals	26.60	35.36	35.60	33.83	36.92	38.39	41.94	45.51	46.34
Coffee	9.61	6.48	7.11	5.85	6.06	6.12	6.48	6.69	6.48
Sugar	4.64	5.84	7.10	7.92	8.99	9.92	6.63	6.98	7.02
Vegetables	3.47	4.39	4.34	4.64	5.33	3.61	2.34	2.44	3.57
Fruits	4.83	4.64	4.83	5.28	5.12	5.96	4.31	4.01	4.16
Fish	3.85	4.16	5.79	4.80	6.82	6.67	7.23	9.43	9.05
Milk products	10.20	10.71	12.79	16.16	18.79	18.23	21.24	21.87	23.28
Total food	118.75	133.09	138.19	142.77	151.63	152.23	148.58	153.72	159.43
Total beverage-									
rages	40.49	42.08	38.23	39.32	45.78	39.74	38.22	37.61	47.65
Total food & beverages	159.24	175.17	176.42	182.09	197.41	191.77	186.80	191.33	207.08

Sources: Appendix Tables 18 A-F
prices from Lista Oficial de Precios, Comité Estatal de Precios, Havana, 1981.

Appendix Table 20B Estimated per capita expenditures on food & beverages 1972-1980
(Cuban 1977 prices)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Meat products	30.88	27.64	28.39	30.25	29.21	32.49	33.65	34.40	36.98
Eggs	13.36	13.76	14.16	14.88	14.00	13.92	14.24	14.72	16.96
Pulses	3.70	3.67	3.77	3.81	4.11	3.77	3.96	3.52	4.63
Oils & fats	9.50	11.28	11.52	10.95	11.20	10.94	14.55	13.33	12.57
Tubers	6.01	6.76	6.47	7.28	7.35	7.15	8.90	8.39	9.98
Cereals	46.03	43.26	46.66	46.37	45.52	37.82	42.61	43.85	47.13
Coffee	6.33	6.27	6.31	6.35	5.64	3.34	3.76	3.76	4.39
Sugar	5.61	4.97	5.48	4.62	5.42	5.52	5.55	7.73	5.73
Vegetables	2.59	3.81	5.25	5.36	5.48	4.13	3.95	4.11	4.51
Fruits	4.93	5.50	5.85	6.07	6.74	6.38	6.05	5.82	8.39
Fish	9.53	9.60	9.75	10.45	9.28	8.75	9.86	8.07	11.02
Milk products	23.65	24.98	25.07	26.87	27.99	27.45	29.71	29.94	29.92
Total food	162.12	161.50	168.68	173.26	171.94	161.66	176.79	179.64	192.21
Total beve- rages	55.28	55.72	51.33	53.63	53.81	49.25	49.28	50.17	53.19
Total food & beverages	217.40	217.22	220.01	226.89	225.75	210.91	226.07	229.81	245.40

Sources: Same as Table 20A.

Appendix Table 21A Estimated per capita expenditures on food & beverages: Cuba 1963-1971
(Constant shadow prices)*

	1963	1964	1965	1966	1967	1968	1969	1970	1971
Meat products	28.47	31.11	30.14	29.40	29.83	30.18	27.45	27.81	29.53
Eggs	2.83	3.05	3.16	3.50	3.98	4.03	4.28	4.48	4.59
Pulses	5.83	6.39	6.14	6.13	6.76	6.01	6.16	5.83	6.32
Oils & fats	6.44	7.19	6.90	7.25	7.84	7.59	6.69	6.69	7.35
Tubers	10.21	10.10	9.68	13.18	8.92	9.03	7.00	3.91	4.91
Cereals	27.49	36.74	37.44	35.65	36.92	40.67	44.60	48.62	49.54
Coffee	12.14	8.18	7.92	7.39	7.66	7.74	8.18	8.45	8.18
Sugar	6.49	8.17	9.93	11.09	12.58	13.88	9.28	9.81	9.83
Vegetables	7.85	9.51	9.84	10.52	12.37	7.82	4.23	4.96	7.15
Fruits	13.69	13.51	14.44	16.22	15.66	18.20	13.79	12.13	12.14
Fish	4.11	4.26	5.16	4.71	7.15	7.07	7.55	10.20	9.93
Milk products	13.59	14.10	16.20	19.69	21.96	22.44	25.94	26.41	28.06
Total food	139.14	152.31	156.95	164.73	174.33	174.66	165.15	169.30	177.53
Total beverages	23.03	23.41	21.68	21.56	23.96	20.31	18.82	17.76	21.49
Total food & beverages	162.17	175.72	178.63	186.29	198.29	194.97	183.97	187.06	199.02

*) Canadian 1961 dollars

Sources: Appendix Tables 18 A-F.
prices from D. Usher (1980), Table 10.

Appendix Table 21B Estimated per capita expenditures on food & beverages 1972-1980 (constant shadow prices)*

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Meat products	30.22	27.52	29.78	32.96	30.89	34.03	35.65	36.75	40.22
Eggs	4.68	4.82	4.96	5.21	4.90	4.87	4.98	5.15	5.94
Pulses	6.20	6.15	6.32	6.39	6.88	6.32	6.63	5.89	7.75
Oils & Fats	7.51	7.82	8.07	8.08	8.21	8.01	9.00	8.83	8.59
Tubers	7.59	8.21	8.27	8.63	8.95	8.06	8.58	8.70	10.21
Cereals	48.14	46.08	49.73	49.36	47.92	39.44	44.70	46.17	49.36
Coffee	8.00	7.92	7.97	8.03	7.13	4.22	4.75	4.75	5.54
Sugar	7.85	6.95	7.67	6.47	7.58	7.73	7.77	8.02	8.02
Vegetables	5.05	8.00	12.47	12.45	13.01	9.72	8.98	9.48	10.49
Fruits	14.23	15.95	16.87	17.73	19.69	18.69	17.78	16.84	24.46
Fish	10.73	11.13	10.78	10.77	10.12	9.90	11.11	9.20	12.53
Milk products	28.23	30.09	30.23	33.48	35.41	35.45	37.35	37.03	37.21
Total food	178.43	180.64	193.12	199.56	200.69	186.42	197.28	196.81	220.32
Total beve-									
rages	25.12	25.56	22.52	22.98	23.31	20.86	21.55	21.83	24.02
Total food									
& beverages	203.55	206.20	215.64	222.54	224.00	207.28	218.83	218.64	244.34

*) Canadian 1961 dollars.

Sources: Appendix Tables 18 A-F.
prices from D. Usher (1980), Table 10.

Appendix Table 22 Estimated per capita expenditures on clothing, 1963-1980 (Cuban 1978 prices)

	Cotton cloth	Rayon cloth	Under- wear	Blouses	Shirts	Pants	Skirts	Suits	Dresses	Leather shoes	Total clothing
1963	10.95	10.70	9.61	1.33	5.43	9.30	0.66	0.94	1.72	19.92	70.56
64	11.97	16.10	12.25	1.52	5.79	9.30	0.77	1.72	2.21	21.45	83.08
65	11.04	24.20	9.92	1.28	5.95	8.85	0.77	1.49	1.60	18.01	83.11
66	7.47	7.90	9.15	1.28	5.01	8.10	0.72	1.02	1.16	20.18	61.99
67	5.93	4.50	10.08	1.28	5.27	10.65	0.72	1.02	1.19	21.45	62.09
68	4.35	3.80	8.84	1.04	4.59	14.10	0.67	0.86	1.03	21.07	60.35
69	2.84	1.70	7.29	0.95	4.49	13.05	0.92	0.47	0.67	20.05	52.43
1970	3.02	8.00	7.13	0.71	3.71	10.35	0.72	0.08	0.27	18.01	52.00
71	3.65	11.20	8.53	0.95	4.23	11.40	0.82	0.39	0.41	20.94	62.54
72	4.35	13.40	8.99	1.04	5.32	15.60	1.02	0.47	0.51	20.69	71.39
73	3.93	9.20	9.46	1.33	6.06	18.60	0.82	0.55	0.62	20.82	71.39
74	2.28	7.50	10.54	1.04	5.59	16.80	1.13	0.63	0.56	18.77	64.84
75	4.28	9.70	11.16	1.09	7.10	19.20	1.23	0.63	0.70	21.20	76.29
76	3.86	14.50	9.92	1.28	6.68	18.45	0.72	0.63	0.59	20.18	76.81
77	4.16	16.40	9.46	1.28	7.10	19.50	0.92	0.63	0.78	16.60	76.83
78	4.17	12.30	10.70	1.23	6.58	16.20	0.97	0.39	0.86	19.54	72.94
79	5.85	20.60	10.54	1.52	8.46	22.20	1.23	0.31	0.65	18.01	89.37
1980	6.20	20.60*	10.23	1.14	7.83	18.15	0.72	0.31	0.65	16.98	82.81

Sources: Appendix Tables 19 and 21B.

Appendix Table 23

Estimated per capita expenditures on clothing, 1963-1980 (Canadian 1961 prices)

	<u>Under- wear</u>	<u>Blouses</u>	<u>Skirts</u>	<u>Pants</u>	<u>Skirts</u>	<u>Dresses</u>	<u>Leather shoes</u>	<u>Total clothing</u>
1963	4.15	0.52	1.92	2.95	0.44	0.73	6.52	17.61
64	5.29	0.60	2.05	2.95	0.51	0.94	7.02	20.05
65	4.29	0.50	2.11	2.80	0.51	0.68	5.89	17.37
66	3.95	0.50	1.78	2.57	0.48	0.49	6.60	16.78
67	4.36	0.50	1.87	3.37	0.48	0.51	7.02	18.52
68	3.15	0.41	1.63	4.47	0.44	0.44	6.90	17.78
69	3.15	0.37	1.59	4.13	0.61	0.28	6.56	16.88
70	3.08	0.28	1.31	3.28	0.48	0.12	5.89	14.47
71	3.69	0.37	1.50	3.61	0.54	0.18	6.86	16.91
72	3.89	0.41	1.89	4.94	0.68	0.22	6.77	18.99
73	4.09	0.52	2.15	5.89	0.54	0.26	6.81	20.48
74	4.56	0.41	1.98	5.32	0.75	0.24	6.14	19.65
75	4.82	0.43	2.52	6.08	0.82	0.30	6.94	22.16
76	4.29	0.50	2.37	5.84	0.48	0.25	6.60	20.58
77	4.09	0.50	2.52	6.18	0.61	0.33	5.43	19.91
78	4.62	0.49	2.33	5.13	0.65	0.37	6.40	20.15
79	4.56	0.60	3.00	7.03	0.82	0.28	5.89	22.31
1980	4.42	0.45	2.78	5.75	0.48	0.28	5.56	19.85

Sources: Appendix Tables 19 and 22.

Appendix Table 24

Basic needs indicators - clothing, 1963-1980
(Number of items per thousand persons purchased in the year)

1963	Underwear	Blouses	Shirts	Pants	Skirts	Suits	Dresses	Shoes (leather)	Cotton Cloth*	Rayon Cloth*
1963	6 180	280	1 040	620	130	12	108	1 560	7 300	1 070
64	7 880	320	1 110	620	150	22	139	1 680	7 980	1 610
65	6 410	270	1 140	590	150	19	101	1 410	7 360	2 420
66	5 900	270	960	540	140	13	73	1 580	4 980	790
67	6 460	270	1 010	710	140	13	75	1 680	3 950	450
68	5 660	220	880	940	130	11	65	1 650	2 900	380
69	4 710	200	860	870	180	6	42	1 570	1 890	170
1970	4 600	150	710	690	140	1	17	1 410	2 010	800
71	5 500	200	810	760	160	5	26	1 640	2 430	1 128
72	5 850	220	1 020	1 040	200	6	32	1 620	2 900	1 340
73	6 100	280	1 160	1 240	160	7	39	1 630	2 620	920
74	6 820	220	1 070	1 120	220	8	35	1 470	1 520	750
75	7 170	230	1 360	1 280	240	8	44	1 660	2 850	970
76	6 440	270	1 280	1 230	140	8	37	1 580	2 570	1 450
77	6 080	270	1 360	1 300	180	8	49	1 300	2 770	1 640
78	6 870	260	1 260	1 080	190	5	54	1 530	2 780	1 230
79	6 800	320	1 620	1 480	240	4	41	1 410	3 900	2 060
1980	6 580	240	1 500	1 210	140	4	41	1 330	4 130	2 060

*) m² per thousand persons.

Sources: BEC 1968, 1970 & 1971, AEC 1974 & 1979 and Boletín Estadístico Mensual de Cuba, March 1981.

Appendix Table 25 Basic Needs indicators - housing, 1958-1980

	Total Number of dwellings (000)	Estimated number of dwellings with basic facilities			Quality index*
		With electricity (%)	With flush toilet (%)	With piped water (%)	
1958	1763.7	59.1	29.4	36.4	0.416
59	1771.7	60.5	30.3	37.6	0.428
1960	1799.9	62.5	32.0	39.4	0.446
61	1821.3	63.4	32.8	40.4	0.455
62	1837.6	64.0	33.1	40.8	0.460
63	1849.1	64.9	33.6	41.5	0.467
64	1856.2	65.8	34.0	42.1	0.473
65	1861.3	66.7	34.5	42.7	0.480
66	1867.6	67.9	35.1	43.6	0.489
67	1877.8	68.6	35.5	44.1	0.494
68	1884.3	69.5	35.9	44.7	0.500
69	1889.1	70.3	36.2	45.2	0.506
1970	1893.1	70.7	36.7	45.7	0.510
71	1898.1	70.8	36.9	45.8	0.512
72	1914.9	71.0	37.4	46.3	0.516
73	1935.6	71.3	38.1	46.9	0.521
74	1954.2	71.6	38.7	47.4	0.526
75	1972.8	71.9	39.3	47.9	0.530
76	1988.1	72.1	39.7	48.3	0.534
77	2008.1	72.4	40.3	48.8	0.538
78	2025.2	72.6	40.8	49.2	0.542
79	2039.4	72.8	41.3	49.8	0.546
1980	2054.2	73.0	41.8	50.2	0.550

*) Unweighted average of the three basic facilities indicators divided by 100.

Sources: Censo de Población y Viviendas de Cuba 1970; Censo de Población, Viviendas y Electoral de Cuba 1973; and Table IV.2; estimates explained in text.

Appendix Table 26 Estimated per capita expenditures on housing,
1958-1980 (Constant prices)

	<u>Unadjusted values</u>		<u>Values adjusted for quality*</u>	
	<u>Cuban prices</u>	<u>Canadian prices</u>	<u>Cuban prices</u>	<u>Canadian prices</u>
1958	118.47	273.31	49.28	113.70
59	116.96	269.41	50.06	115.31
1960	116.46	267.00	51.94	119.08
61	116.05	267.42	52.80	121.68
62	115.15	265.93	52.97	122.33
63	113.24	261.36	52.86	122.06
64	110.73	255.57	52.38	120.88
65	108.22	249.77	51.95	119.89
66	106.21	245.11	51.93	119.86
67	104.80	241.80	51.77	119.45
68	103.29	238.40	51.65	119.20
69	101.89	235.11	51.56	118.97
1970	100.48	231.81	51.24	118.22
71	99.17	228.88	50.78	117.19
72	98.17	226.47	50.66	116.86
73	97.37	224.52	50.73	116.97
74	96.56	222.76	50.79	117.17
75	96.06	221.56	50.91	117.47
76	95.36	220.00	50.92	117.48
77	95.26	219.65	51.25	118.17
78	94.85	218.73	51.41	118.55
79	94.85	218.75	51.98	119.44
1980	96.46	222.47	53.05	122.36

*) Unadjusted values x Quality index

Source: explained in text.

Appendix Table 27 Enrolments by level of education, 1958-1980

	Enrolments*			
	Primary	Secondary	Higher	Adult
1958	717.4	88.1	25.6	7.0
59	1092.3	90.2	19.5	73.0
1960	1136.3	122.9	19.9	66.6
61	1166.9	151.0	17.9	436.4
62	1217.3	166.9	17.3	496.5
63	1316.0	201.4	20.4	483.6
64	1370.7	196.7	26.3	848.0
65	1332.1	202.7	26.2	581.7
66	1367.3	234.4	28.2	451.5
67	1397.7	234.4	29.2	500.0
68	1466.3	250.7	32.3	417.7
69	1558.1	255.9	34.5	360.6
1970	1664.6	237.7	35.1	365.3
71	1759.2	282.3	36.9	354.1
72	1852.7	324.4	48.7	431.3
73	1899.3	395.5	55.6	444.5
74	1923.3	520.3	68.5	412.0
75	1922.3	629.2	84.7	594.0
76	1899.0	806.0	107.1	701.3
77	1845.2	963.3	127.5	605.2
78	1761.2	1074.3	123.0	500.9
79	1672.9	1150.3	146.2	392.0
1980	1588.5	1167.4	151.4	300.0**
				Total
				838.1
				1275.0
				1345.7
				1771.6
				1888.0
				1984.4
				2398.1
				2144.4
				2078.4
				2203.0
				2180.6
				2205.6
				2304.2
				2407.0
				2624.7
				2794.9
				2924.1
				3230.2
				3513.4
				3541.2
				3469.4
				3361.4
				3207.3

*) Enrolments during school-year. 1958 thus refers to school-year 1958-59 etc. ***) Estimate
 Sources: BEC 1968, 1970 & 1971; AEC 1974 & 1979; BEM (March) 1981; and Ministerio de Educación (1980).

Appendix Table 28A Estimated Basic Needs Expenditures Per Capita
in Cuba 1958-1980 (Constant Cuban pesos)

	Food & Beverages	Clothing	Housing	Education	Health	Total
1958	223.97	74.23	49.28	18.70	18.63	384.81
59	241.21	89.40	50.06	21.14	19.76	421.57
1960	237.66	70.84	51.94	22.79	19.38	402.61
61	234.20	50.80	52.80	29.55	18.67	386.02
62	211.08	65.69	52.97	31.17	19.19	380.10
63	199.73	70.56	52.86	32.98	19.13	375.26
64	217.25	83.08	52.38	38.32	19.63	410.66
65	214.65	83.11	51.95	34.17	19.95	403.83
66	221.41	61.99	51.93	33.61	20.78	389.72
67	243.19	62.09	51.77	34.10	21.64	412.79
68	231.21	60.35	51.65	33.64	21.12	397.97
69	225.02	52.43	51.56	33.90	22.08	384.99
1970	227.94	52.00	51.24	34.37	19.99	385.54
71	254.73	62.54	50.78	36.31	20.34	424.70
72	272.68	71.39	50.66	45.25	21.00	460.98
73	272.94	71.39	50.73	52.70	23.51	471.77
74	271.34	64.84	50.79	63.22	25.98	456.17
75	280.52	76.29	50.91	76.15	27.89	511.76
76	279.56	76.81	50.92	98.81	30.30	536.40
77	260.16	76.83	51.25	107.45	33.82	529.51
78	275.35	72.94	51.41	111.21	34.82	545.73
79	279.98	84.37	51.98	115.30	35.41	567.04
1980	298.59	82.81	53.05	115.69	36.21	586.35

Source: Appendix Tables 18-27.

Appendix Table 28B Estimated Basic Needs Expenditures Per Capita
in Cuba, 1958-1980 (Constant Canadian dollars)

	Food & Beverages	Clothing	Housing	Education	Health	Total
1958	175.62	18.53	113.70	66.61	65.13	439.59
59	187.61	22.31	115.44	81.74	69.12	476.22
1960	186.08	17.68	119.83	89.52	68.46	481.57
61	184.54	12.68	121.77	110.25	66.46	495.70
62	171.29	16.39	122.15	116.30	68.19	494.32
63	162.17	17.61	122.06	126.29	68.16	496.29
64	175.72	20.05	120.88	141.15	71.21	528.51
65	178.63	17.37	119.89	127.37	73.10	516.36
66	186.29	16.78	119.86	127.91	76.23	527.07
67	198.29	18.52	119.45	128.99	80.56	545.81
68	194.97	17.78	119.20	130.76	79.03	541.74
69	183.97	16.88	118.97	131.70	82.61	534.13
1970	187.06	14.47	118.22	130.48	73.89	524.12
71	199.02	16.91	117.19	140.05	76.23	549.40
72	203.55	18.99	116.86	155.74	78.52	573.66
73	206.20	20.48	116.97	170.24	88.82	602.71
74	215.64	19.65	117.17	193.80	97.00	643.26
75	222.54	22.16	117.47	221.41	105.15	688.73
76	224.00	20.58	117.48	259.23	114.34	735.63
77	207.28	19.91	118.17	285.10	126.56	757.02
78	218.83	20.15	118.55	291.64	130.61	779.78
79	218.64	22.35	119.44	305.92	132.55	798.90
1980	244.34	19.85	122.36	306.16	135.19	827.90

Source: Appendix Tables 18-27.

Appendix Table 29 Estimated distribution of wages & salaries in 1953

Number of persons (1)	% (2)	Cumulative % (3)	Annual Average Income (pesos) (4)	Total Income (000 pesos) (5) = (1) x (4)	% (6)	Cumulative % (7)
82 512	4.0	4.0	0	0	0	0
197 911	9.6	13.6	100	19 791	0.9	0.9
321 374	15.6	29.2	200	62 475	3.0	3.9
271 939	13.2	42.4	300	81 582	3.9	7.8
168 779	8.2	50.6	400	67 512	3.2	11.0
85 573	4.2	54.8	600	51 344	2.4	13.4
80 000	3.9	58.7	900	72 000	3.4	16.8
112 070	5.4	64.1	1 000	112 070	5.3	22.1
197 391	9.6	73.7	1 200	236 869	11.3	33.4
223 940	10.9	84.6	1 500	335 910	16.0	49.4
15 546	0.8	85.4	1 812	28 169	1.3	50.7
35 000	1.7	87.1	2 000	70 000	3.3	54.0
12 720	0.6	87.7	2 244	28 544	1.4	55.4
74 974	3.6	91.3	2 352	176 338	8.4	63.8
26 134	1.3	92.6	2 784	72 757	3.5	67.3
43 346	2.1	94.7	2 808	121 716	5.8	73.1
30 000	1.5	96.2	3 000	90 000	4.3	77.4
2 827	0.1	96.3	3 552	10 042	0.5	77.9
22 613	1.1	97.3	3 696	83 578	4.0	81.9
10 302	0.5	97.8	5 424	55 878	2.7	84.6
39 208	1.9	99.7	8 230	322 682	15.4	100.0
2 059 659	99.7	-	1 019	2 099 257	100.0	-

Source: Censos de Población, Viviendas y Electoral, Havana 1953; Sample Survey of Wages and Salaries in 1955, quoted in US Department of Commerce (1956), tables 95 & 96; Scattered information in numerical strength and incomes of social classes in Padula (1974), C.R. Rodríguez (1979), Blackburn (1963) and FAO (1966), IBRD (1952), p. 142; Nelson (1950), p. 170.

Appendix Table 30A Estimated distribution of wages & salaries in 1962

Number of persons (1)	% (2)	Cumulative % (3)	Annual Average Income (pesos) (4)	Total Income (000 pesos) (5) = (1) x (4)	% (6)	Cumulative % (7)
136	7.7	7.7	250	34 000	1.5	1.5
75	4.2	11.9	382	28 650	1.3	2.8
136	7.7	19.6	500	68 000	3.1	5.9
11	0.6	20.2	538	5 918	0.3	6.2
33	1.9	22.1	544	17 952	0.8	7.0
24	1.4	23.5	576	13 824	0.6	7.6
26	1.5	25.0	680	17 680	0.8	8.4
53	3.0	28.0	682	36 146	1.6	10.0
136	7.7	35.7	750	102 000	4.6	14.6
74	4.2	39.9	763	58 462	2.6	17.2
66	3.7	43.6	776	51 216	2.3	19.5
3	0.2	43.8	793	2 379	0.1	19.6
15	0.8	44.4	891	13 365	0.6	20.2
1	0.06	44.5	955	955	0.04	20.2
136	7.7	52.1	1 000	136 000	6.1	26.3
33	1.9	54.7	1 088	35 904	1.6	28.5
74	4.2	58.9	1 145	84 730	3.8	32.3
24	1.4	60.3	1 152	27 648	1.2	33.5
25	1.4	61.7	1 360	34 000	1.5	35.0
52	2.9	64.6	1 363	70 876	3.2	38.2
74	4.2	68.8	1 526	112 924	5.1	43.3
67	3.8	72.6	1 553	104 051	4.7	48.0
3	0.2	72.8	1 586	4 758	0.2	48.2
11	0.6	73.4	1 613	17 743	0.8	49.0
33	1.9	75.3	1 632	53 856	2.4	51.4
24	1.4	76.7	1 728	41 472	1.9	53.3
16	0.9	77.6	1 782	28 512	1.3	54.6
1	0.06	77.7	1 910	1 910	0.1	54.7
25	1.4	79.0	2 040	51 000	2.3	57.0
52	2.9	81.9	2 045	106 340	4.8	61.8

Appendix Table 30B (Cont.) Estimated distribution of wages & salaries in 1962

Number of persons (1)	% (2)	Cumulative % (3)	Annual Average Income (pesos) (4)	Total Income (000 pesos) (5) = (1) x (4)	% (6)	Cumulative % (7)
11	0.6	82.5	2 150	23 650	1.1	62.9
33	1.9	84.4	2 176	71 808	3.2	66.1
24	1.4	85.8	2 304	55 296	2.5	68.6
67	3.8	39.6	2 329	156 043	7.0	75.6
3	0.2	89.8	2 380	7 140	0.3	75.9
15	0.8	90.6	2 672	40 080	1.8	77.7
25	1.4	92.0	2 720	68 000	3.1	80.8
52	2.9	94.9	2 726	141 752	6.4	87.2
1	0.06	95.0	2 866	2 866	0.1	87.3
67	3.8	98.7	3 106	208 102	9.4	96.6
3	0.2	98.9	3 173	9 519	0.4	97.0
16	0.9	99.8	3 563	57 008	2.6	99.6
1	0.06	99.9	3 820	3 820	0.2	99.8
1 769	99.9	-	1 255	2 220 255	99.8	-

Sources: AEC 1968; O'Connor (1970), Table 4, p. 210; Minrex (1966), p. 58.

Appendix Table 31 Estimated distribution of wages & salaries in 1973

Number of persons (000) (1)	% (2)	Cumulative % (3)	Annual Average Income (pesos) (4)	Total Income (000 pesos) (5) = (1) x (4)	% (6)	Cumulative % (7)
45	2.1	2.1	561	25 245	0.8	0.8
165	7.7	9.8	566	94 522	2.9	3.7
131	6.0	15.8	578	75 718	2.3	6.0
6	0.3	16.1	637	3 822	0.1	6.1
114	5.2	21.3	641	73 074	2.2	8.3
44	2.0	23.3	693	30 492	0.9	9.2
39	1.8	25.1	726	28 314	0.9	10.1
44	2.0	27.1	1 122	49 368	1.5	11.6
168	7.7	34.8	1 133	190 344	5.8	17.4
131	6.0	40.8	1 155	151 305	4.6	22.0
6	0.3	41.1	1 274	7 644	0.2	22.2
113	5.2	46.3	1 282	144 866	4.4	26.6
44	2.0	48.3	1 386	60 984	1.8	28.4
40	1.8	50.1	1 452	58 080	1.8	30.2
44	2.0	52.1	1 682	74 008	2.2	32.4
167	7.7	59.8	1 699	283 733	8.6	41.0
131	6.0	65.8	1 733	227 023	6.9	47.9
6	0.3	66.1	1 910	11 460	0.3	48.2
113	5.2	71.3	1 924	217 412	6.6	54.8
44	2.0	73.3	2 080	91 520	2.8	57.6
40	1.8	75.1	2 178	87 120	2.6	60.2
44	2.0	77.1	2 243	98 692	3.0	63.2
168	7.7	84.8	2 266	380 688	11.5	74.7
131	6.0	90.8	2 310	302 610	9.1	83.8
5	0.2	91.1	2 547	12 735	0.4	84.2
113	5.2	96.2	2 565	289 845	8.8	93.0
44	2.0	98.2	2 773	122 012	3.7	96.7
40	1.8	100.0	2 904	116 160	3.5	100.2
2 182	100.0	-----	1 516	3 308 795	100.2	-----

Source: AEC 1974, pp. 40-42; methodology explained in text.

Appendix Table 32

Estimated distribution of wages & salaries in 1978

Number of pesos (000) (1)	% (2)	Cumulative % (3)	Annual Average Income (pesos) (4)	Total Income (000 pesos) (5) = (1) x (4)	% (6)	Cumulative % (7)
216	7.4	7.4	543	117 424	2.4	2.4
74	2.5	9.9	626	46 340	0.9	3.3
179	6.1	16.0	684	122 368	2.5	5.8
5	0.2	16.2	690	3 657	0.1	5.9
80	2.7	18.9	737	58 757	1.2	7.1
138	4.7	23.6	742	102 563	2.1	9.2
40	1.4	25.0	838	33 813	0.7	9.9
216	7.4	32.4	1 086	234 848	4.8	14.7
74	2.5	34.9	1 251	92 605	1.9	16.6
179	6.1	41.0	1 368	244 735	5.0	21.6
5	0.2	41.2	1 381	7319	0.2	21.8
80	2.7	43.9	1 474	117 515	2.4	24.2
138	4.7	48.6	1 483	204 988	4.2	28.4
216	7.4	56.0	1 678	352 055	7.2	35.6
40	1.4	57.4	1 675	67 586	1.4	37.0
74	2.5	59.9	1 877	138 945	2.8	39.8
179	6.1	66.0	2 052	367 103	7.5	47.3
5	0.2	66.2	2 071	10 976	0.2	47.5
7	0.2	66.4	2 103	14 300	0.3	47.8
216	7.4	73.8	2 171	469 479	9.6	57.4
80	2.7	76.5	2 212	176 352	3.6	61.0
138	4.7	81.2	2 225	307 551	6.3	67.3
74	2.5	83.7	2 502	185 211	3.8	71.1
40	1.4	85.1	2 513	135 173	2.8	73.9
179	6.1	91.1	2 736	489 470	10.0	83.9
5	0.2	91.4	2 762	14 639	0.3	84.2
80	2.7	94.1	2 949	235 109	4.8	89.0
138	4.7	98.8	2 966	409 975	8.4	97.4
40	1.4	100.2	3 350	135 173	2.8	100.2
2 938	100.2	-	1 667	-	100.2	-

Source: AEC 1979, p. 57; methodology explained in text

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